OfficeConnect®

ADSL Wireless 11g Firewall Router User Guide

Model WL-542

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3CRWDR100B-72
3CRWDR100U-72

http://www.3com.com/

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CONTENTS

ABOUT THIS GUIDE

Naming Convention 5
Conventions 6
Feedback About this User Guide 6
Related Documentation 7

1 INTRODUCING THE ROUTER

OfficeConnect ADSL Wireless 11g Firewall Router 9
Router Advantages 11
Package Contents 11
Minimum System and Component Requirements 12
Front Panel 12
Rear Panel 13

2 INSTALLING THE ROUTER

Introduction 15
    Safety Information 15
Positioning the Router 15
    Using the Rubber Feet 16
Powering Up the Router 16
Connecting the Router 16

3 SETTING UP YOUR COMPUTERS

Obtaining an IP Address Automatically 21
    Windows 2000 21
    Windows XP 23
    Windows 98/ME 23
    Macintosh 23
Disabling PPPoE and PPTP Client Software 24
Disabling Web Proxy 24

4 RUNNING THE SETUP WIZARD

Accessing the Setup Wizard 25
Setup Wizard - Connection Type 27

5 CONFIGURING THE ROUTER

Navigating Through the Router Configuration Pages 35
Main Menu 35
Status Screen 35
Status 35
LAN Setup 36
LAN Settings 37
Wireless Settings 39
Configuring Wireless 39
Encryption 40
Internet Settings 46
Connection Type 46
DNS 55
Hostname & MAC 56
Firewall 57
Special Applications 58
Virtual Servers 59
Client IP Filters 60
MAC Address Filtering 65
DMZ 66
Advanced 68
Routing 70
DDNS 73
SNMP 74
System Tools 75
Restart Router 75
Reset to Factory Default 76
Backup/Restore Settings 76
Upgrade 77
Admin Password 77
Time and Time Zone 78
Syslog Server 79
Status and Logs 80

Status 80
ADSL Status 80
ATM PVC Status 81
Logs 81
Support/Feedback 82
Support 82
Feedback 82

6 TROUBLESHOOTING

Basic Connection Checks 83
Browsing to the Router Configuration Screens 83
Connecting to the Internet 84
Forgotten Password and Reset to Factory Defaults 84
Wireless Networking 85
Recovering from Corrupted Software 87
Frequently Asked Questions 88

A IP ADDRESSING

The Internet Protocol Suite 89
Managing the Router over the Network 89
IP Addresses and Subnet Masks 89
How does a Device Obtain an IP Address and Subnet Mask? 91
DHCP Addressing 91
Static Addressing 91
Auto-IP Addressing 91

B TECHNICAL SPECIFICATIONS

OfficeConnect ADSL Wireless 11g Firewall Router 93
Standards 94

C SAFETY INFORMATION

D END USER SOFTWARE LICENSE AGREEMENT

E OBTAINING SUPPORT FOR YOUR PRODUCT

Register Your Product 103
Purchase Value-Added Services 103
Troubleshoot Online 104
Access Software Downloads 104
Telephone Technical Support and Repair 104
Contact Us 105

GLOSSARY

REGULATORY NOTICES

INDEX

About This Guide

This guide describes how to install and configure the OfficeConnect ADSL Wireless 11g Firewall Router (3CRWD100x-72).

This guide is intended for use by those responsible for installing and setting up network equipment; consequently, it assumes a basic working knowledge of LANs (Local Area Networks) and Internet Routers.

If a release note is shipped with the ADSL 11g Wireless Router and contains information that differs from the information in this guide, follow the information in the release note.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) on the 3Com World Wide Web site:

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Naming Convention

Throughout this guide, the OfficeConnect ADSL Wireless 11g Firewall Router is referred to as the "Router".

Category 3 and Category 5 Twisted Pair Cables are referred to as Twisted Pair Cables throughout this guide.

Conventions

Table 1 and Table 2 list conventions that are used throughout this guide.

Table 1 Notice Icons

Icon	Notice Type	Description
	Information note	Information that describes important features or instructions.
	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device.
	Warning	Information that alerts you to potential personal injury.

Table 2 Text Conventions

Convention	Description
The words "enter" and "type"	When you see the word "enter" in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says "type."
Keyboard key names	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press Ctrl+Alt+Del
Words in *italics*	Italics are used to: ■ Emphasize a point. ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names, menu commands, and software button names. Examples: From the *Help* menu, select *Contents*. Click *OK*.

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- Document part number (on the title page)
- Page number (if appropriate)

Example:

- OfficeConnect ADSL Wireless 11g Firewall Router User Guide
- Part Number DUA100A-72AAA01
- Page 24

Do not use this e-mail address for technical support questions. For information about contacting Technical Support, please refer to Appendix E.

Related Documentation

In addition to this guide, each Router document set includes one Installation Guide. This guide contains the instructions you need to install and configure your Router.

1 INTRODUCING THE ROUTER

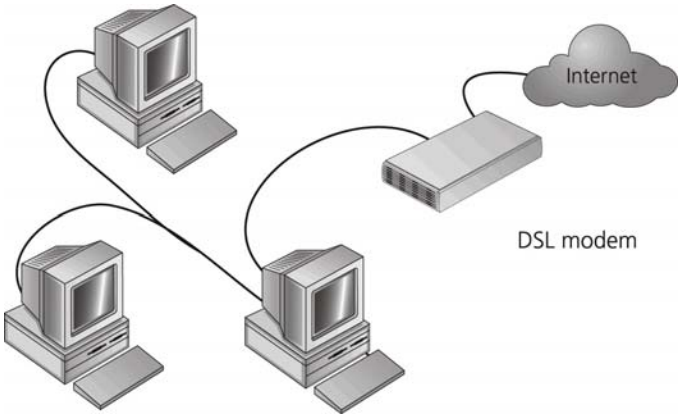
Welcome to the world of networking with 3Com®. In the modern business environment, communication and sharing information is crucial. Computer networks have proved to be one of the fastest modes of communication but, until recently, only large businesses could afford the networking advantage.

OfficeConnect ADSL Wireless 11g Firewall Router

The OfficeConnect ADSL Wireless 11g Firewall Router is designed to provide a cost-effective means of sharing a single broadband Internet connection amongst several wired and wireless computers. The Router also provides protection in the form of an electronic "firewall" preventing anyone outside of your network from seeing your files or damaging your computers. The Router can also prevent your users from accessing Web sites which you find unsuitable.

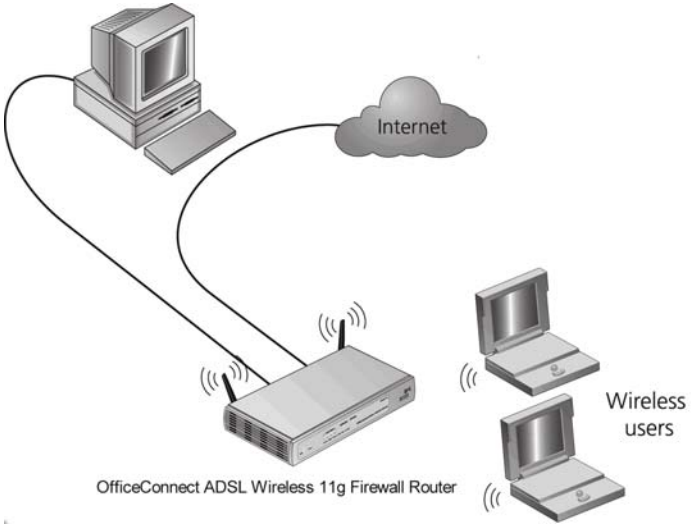
Figure 1 shows an example network without a Router. In this network, only one computer is connected to the Internet. This computer must always be powered on for the other computers on the network to access the Internet.

Figure 1 Example Network Without a Router



When you use the Router in your network (Figure 2), it becomes your connection to the Internet. Connections can be made directly to the Router, or to an OfficeConnect Switch or Hub, expanding the number of computers you can have in your network.

Figure 2 Example Network Using a Firewall Router



Router Advantages

The advantages of the Router include:

- Shared Internet connection for both wired and wireless computers
- High speed 802.11g wireless networking
- No need for a dedicated, "always on" computer serving as your Internet connection
- Cross-platform operation for compatibility with Windows, Unix and Macintosh computers
- Easy-to-use, Web-based setup and configuration
- Provides centralization of all network address settings (DHCP)
- Acts as a Virtual server to enable remote access to Web, FTP, and other services on your network
- Security — Firewall protection against Internet hacker attacks and encryption to protect wireless network traffic

Package Contents

The Router kit includes the following items:

- One OfficeConnect ADSL Wireless 11g Firewall Router
- One power adapter for use with the Router
- Four rubber feet
- One Telephone Cable
- One CD-ROM containing this User Guide
- Installation Guide
- One Support and Safety Information Sheet
- One Warranty Flyer

If any of these items are missing or damaged, please contact your retailer.

Minimum System and Component Requirements

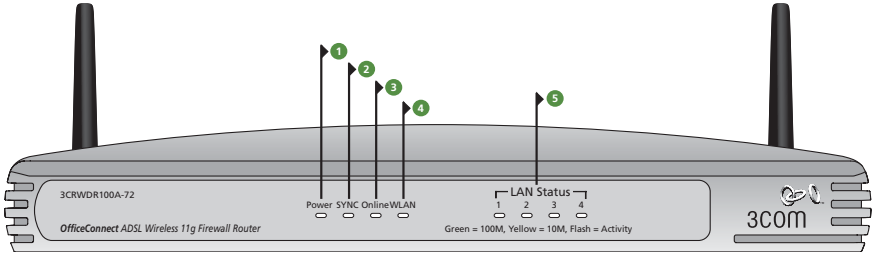
Your Router requires that the computer(s) and components in your network be configured with at least the following:

- A computer with an operating system that supports TCP/IP networking protocols (for example Windows 98/NT/Me/2000/XP, Unix, Mac OS 8.5 or higher).
- An Ethernet 10 Mbps or 10/100 Mbps NIC for each computer to be connected to the four-port switch on your Router.
- An 802.11b or 802.11g wireless NIC.
- An active ADSL subscription and connection.
- A Web browser that supports JavaScript, such as Netscape 4.7 or higher, Internet Explorer 5.0 or higher, or Mozilla 1.2.1 or higher.

Front Panel

The front panel of the Router contains a series of indicator lights (LEDs) that help describe the state of various networking and connection operations.

Figure 3 Router - Front Panel



1 Power LED

Green

Indicates that the Router is powered on.

2 SYNC LED

Green

If the LED is on it indicates that DSL connection is present. This LED flashes during configuration at power up.

3 Online LED

Green

If this LED is on, your username/password has been authenticated successfully with your ISP.

4 Wireless LAN (WLAN) Status LED

Green

If the LED is on it indicates that wireless networking is enabled. If the LED is flashing, the link is OK and data is being transmitted or received. If the LED is off, the Wireless LAN has been disabled in the Router, or there is a problem. Refer to Chapter 6 "Troubleshooting".

5 LAN Status LEDs

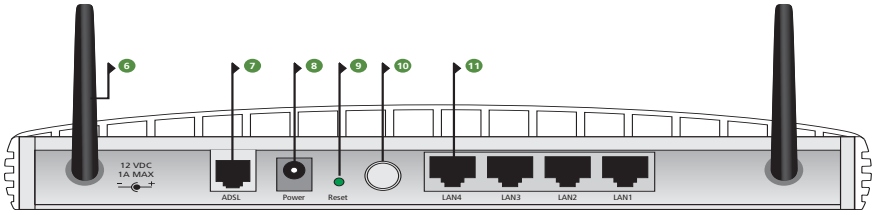
Green

If the LED is on, the link between the port and the next piece of network equipment is OK. If the LED is flashing, the link is OK and data is being transmitted or received. If the LED is off, nothing is connected, or the connected device is switched off, or there is a problem with the connection (refer to Chapter 6 "Troubleshooting"). The port will automatically adjust to the correct speed and duplex.

Rear Panel

The rear panel (Figure 4) of the Router contains four LAN ports, one ADSL port, a reset button, a power switch, and a power adapter socket.

Figure 4 Router - Rear Panel



6 Wireless Antennae

The antennae on the product should be placed in a 'V' position when initially installed.

CAUTION: *Do not force the antennae beyond their mechanical stops. Rotating the antennae further may cause damage.*

7 ADSL Port

Using the RJ11 cable provided, you should connect your Router to the telephone socket via a splitter.

8 Power Adapter Socket

Only use the power adapter that is supplied with this Router. Do not use any other adapter.

9 Reset Button

If you want to reset your Router to factory default settings, and cannot access the web management interface (for example, due to a lost password), then you may use this button. Refer to "Forgotten Password and Reset to Factory Defaults" on page 84 for further details.

10 Power Switch

Push this switch to the "in" position to turn the unit on. In the "out" position, the unit is off.

11 Ethernet Ports

Using suitable RJ45 cables, you can connect your Router to a computer, or to any other piece of equipment that has an Ethernet connection (for example, a hub or a switch). These ports have an automatic MDI/MDIX feature, which means either straight-through or a crossover cable can be used.

2 INSTALLING THE ROUTER

Introduction

This chapter will guide you through a basic installation of the Router, including:

- Connecting the Router to the Internet.
- Connecting the Router to your network.
- Setting up your computers for networking with the Router.

Safety Information

Please note the following:

WARNING: *Please read the "Safety Information" section in Appendix C before you start.*

VORSICHT: *Bitte lesen Sie den Abschnitt "Wichtige Sicherheitshinweise" sorgfältig durch, bevor Sie das Gerät einschalten.*

AVERTISSEMENT: *Veuillez lire attentivement la section "Consignes importantes de sécurité" avant de mettre en route.*

Positioning the Router

You should place the Router in a location that:

- is conveniently located for connection to the telephone socket.
- is centrally located to the wireless computers that will connect to the Router. A suitable location might be on top of a high shelf or similar furniture to optimize wireless connections to computers in both horizontal and vertical directions, allowing wider coverage.
- allows convenient connection to the computers that will be connected to the four LAN ports on the rear panel, if desired.
- allows easy viewing of the front panel LED indicator lights, and access to the rear panel connectors, if necessary.

When positioning your Router, ensure:

- It is out of direct sunlight and away from sources of heat.
- Cabling is away from power lines, fluorescent lighting fixtures, and sources of electrical noise such as radios, transmitters and broadband amplifiers.
- Water or moisture cannot enter the case of the unit.
- Air flow around the unit and through the vents in the side of the case is not restricted. 3Com recommends you provide a minimum of 25 mm (1 in.) clearance.

Using the Rubber Feet

Use the four self-adhesive rubber feet to prevent your Router from moving around on your desk or when stacking with flat top units. Only stick the feet to the marked areas at each corner of the underside of your Router.

Powering Up the Router

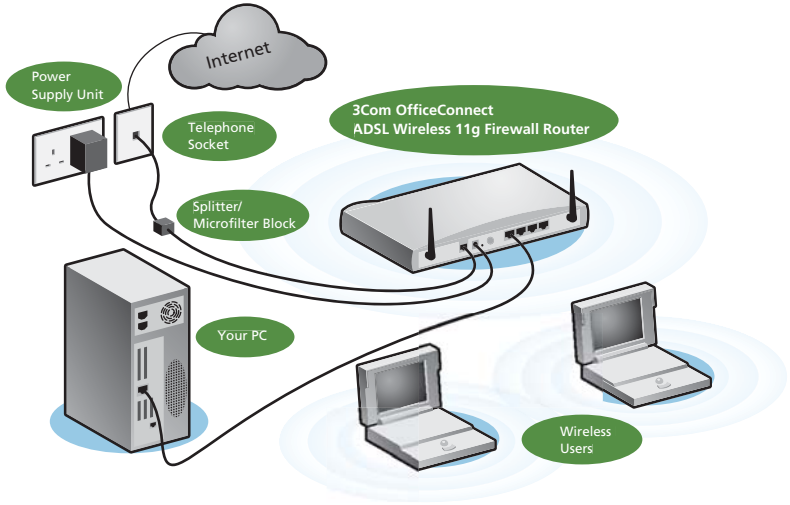
To power up the Router:

1. Plug the power adapter into the power adapter socket located on the back panel of the Router.
2. Plug the power adapter into a standard electrical wall socket.
3. Press the power button located on the back of the Router.

Connecting the Router

The first step for installing your Router is to physically connect it to the telephone socket and then connect it to a computer in order to be able to access the Internet. See Figure 5:

Figure 5 Connecting the Router



1 Run the provided telephone cable from the wall jack providing ADSL service to the ADSL port on your ADSL Router. When inserting an ADSL RJ-11 plug, be sure the tab on the plug clicks into position to ensure that it is properly seated. If you are using splitterless ADSL service, add low-pass filters between the ADSL wall jack and your telephones. (These filters pass voice signals through but filter data signals out.)

2 Then:

- If you are using a full-rate (G.dmt) connection, your service provider will attach the outside ADSL line to a data/voice splitter. In this case you can connect your phones and computer directly to the splitter as shown below (Figure 6):

  or

- If you are using a splitterless (G.lite) connection, then your service provider will attach the outside ADSL line directly to your phone system. In this case you can connect your phones and computer directly to the incoming ADSL line, but you will have to add low-pass filters to your phones as shown below (Figure 7)

Figure 6 Installing with a splitter

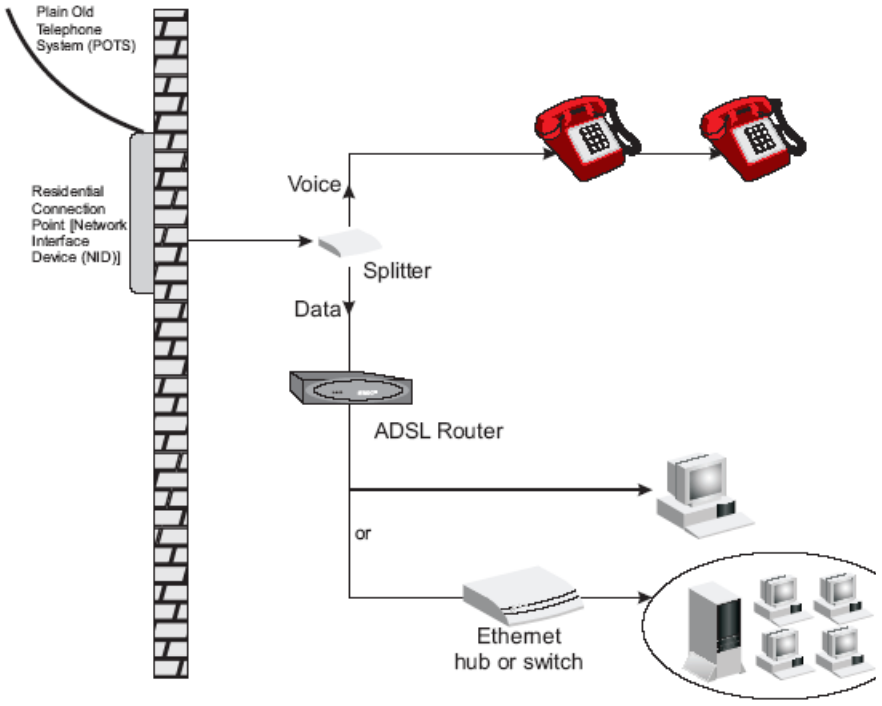
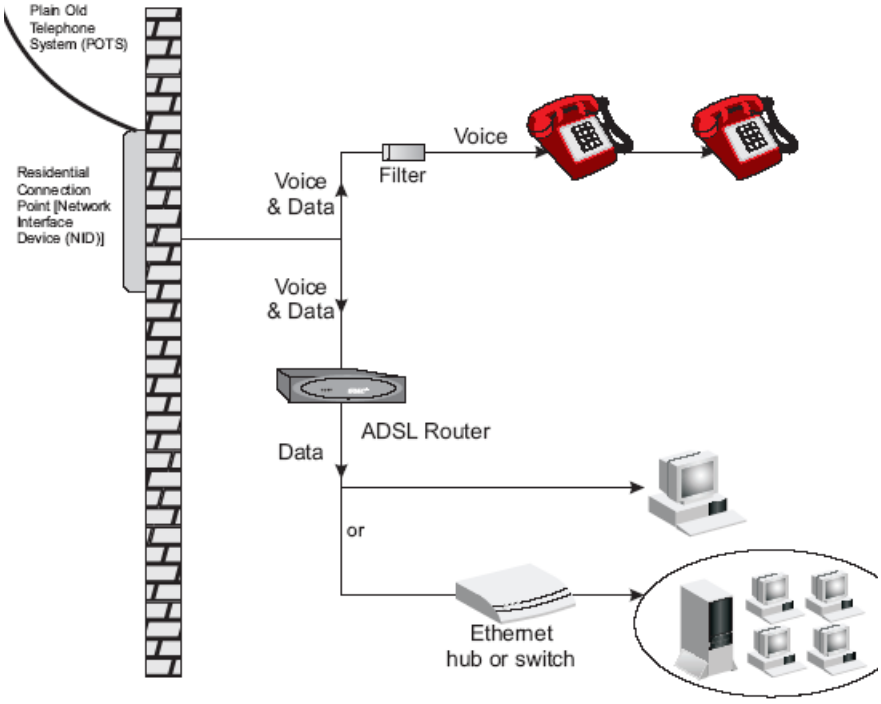


Figure 7 Installing without a splitter



You have now completed the hardware installation of your Router. Next you need to set up your computers so that they can make use of the Router to communicate with the Internet.

3Com recommends that you perform the initial Router configuration from a computer that is directly connected to one of the LAN ports.

If you configure the Router from a wireless computer, note that you may lose contact with the Router if you change the wireless configuration.

To communicate wirelessly with your Router, your wireless NIC should be set as follows:

- Encryption — none
- SSID — 3Com
- Channel — 11

3 SETTING UP YOUR COMPUTERS

The Router has the ability to dynamically allocate network addresses to the computers on your network, using DHCP. However, your computers need to be configured correctly for this to take place. To change the configuration of your computers to allow this, follow the instructions in this chapter.

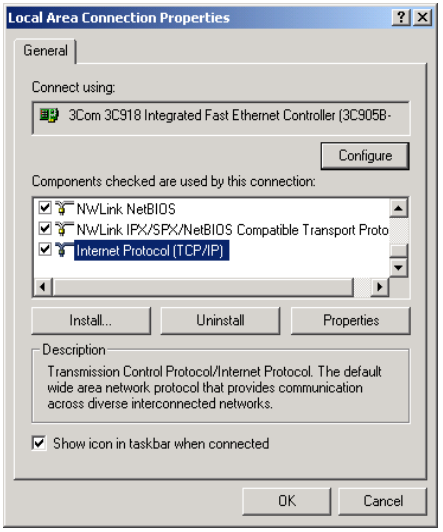
Obtaining an IP Address Automatically

Windows 2000

If you are using a Windows 2000-based computer, use the following procedure to change your TCP/IP settings:

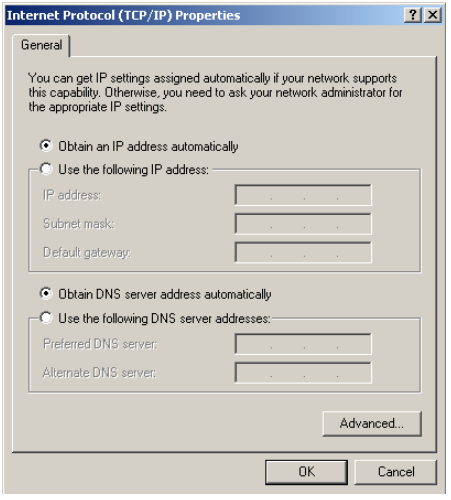
1. From the Windows *Start* Menu, select *Settings* > *Control Panel*.
2. Double click on *Network and Dial-Up Connections*.
3. Double click on *Local Area Connection*.
4. Click on *Properties*.
5. A screen similar to Figure 8 should be displayed. Select *Internet Protocol TCP/IP* and click on *Properties*.

Figure 8 Local Area Properties Screen



6 Ensure that the options *Obtain an IP Address automatically*, and *Obtain DNS server address automatically* are both selected as shown in Figure 9. Click *OK*.

Figure 9 Internet Protocol (TCP/IP) Properties Screen


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

7 Restart your computer.

Windows XP

1. From the Windows *Start* menu, select *Control Panel*.
2. Click on *Network and Internet Connections*.
3. Click on the *Network Connections* icon.
4. Double click on *LAN* or *High Speed Connection* icon. A screen titled *Local Area Connection Status* will appear.
5. Select *Internet Protocol TCP/IP* and click on *Properties*.
6. Ensure that the options *Obtain an IP Address automatically*, and *Obtain DNS servers automatically* are both selected. Click *OK*.
7. Restart your computer.

Windows 98/ME

1. From the Windows *Start* Menu, select *Settings* > *Control Panel*.
2. Double click on *Network*. Select the *TCP/IP* item for your network card and click on *Properties*.
3. In the TCP/IP dialog, select the *IP Address* tab, and ensure that *Obtain IP address automatically* is selected. Click *OK*.

Macintosh

If you are using a Macintosh computer, use the following procedure to change your TCP/IP settings:

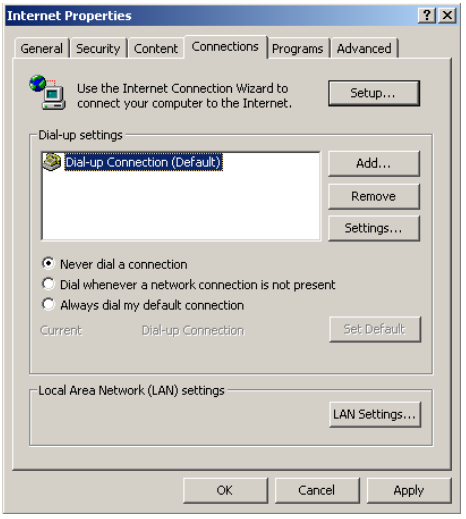
1. From the desktop, select *Apple Menu*, *Control Panels*, and *TCP/IP*.
2. In the *TCP/IP* control panel, set *Connect Via:* to *Ethernet*.
3. In the TCP/IP control panel, set *Configure:* to *Using DHCP Server*.
4. Close the *TCP/IP* dialog box, and save your changes.
5. Restart your computer.

Disabling PPPoE and PPTP Client Software

If you have PPPoE client software installed on your computer, you will need to disable it. To do this:

1. From the Windows *Start* menu, select *Settings* > *Control Panel*.
2. Double click on *Internet* Options.
3. Select the *Connections* Tab. A screen similar to Figure 10 should be displayed.
4. Select the *Never Dial a Connection* option.

Figure 10 Internet Properties Screen



You may want to remove the PPPoE client software from your computer to free resources, as it is not required for use with the Router.

Disabling Web Proxy

Ensure that you do not have a web proxy enabled on your computer.

Go to the *Control Panel* and click on *Internet Options*. Select the *Connections* tab and click *LAN Settings* at the bottom. Make sure that the *Use Proxy Server* option is unchecked.

4 Running the Setup Wizard

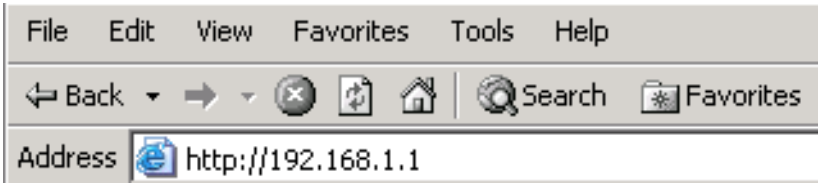
Accessing the Setup Wizard

The Router setup program is Web-based, which means that it is accessed through your Web browser (Netscape Navigator 4.7 or higher, Internet Explorer 5.0 or higher, or Mozilla 1.2.1 or higher).

To use the Setup Wizard:

1. Ensure that you have at least one computer connected to the Router. Refer to Chapter 2 for details on how to do this.
2. Launch your Web browser on the computer.
3. Enter the following URL in the location or address field of your browser: **`http://192.168.1.1`** (Figure 11). The Login screen displays.

Figure 11 Web Browser Location Field (Factory Default)



4. To log in as an administrator, enter the password (the default password is *admin*) in the *Password* field and click *Log in* (Figure 12).

Figure 12 Router Login Screen

5 When you have logged in either:

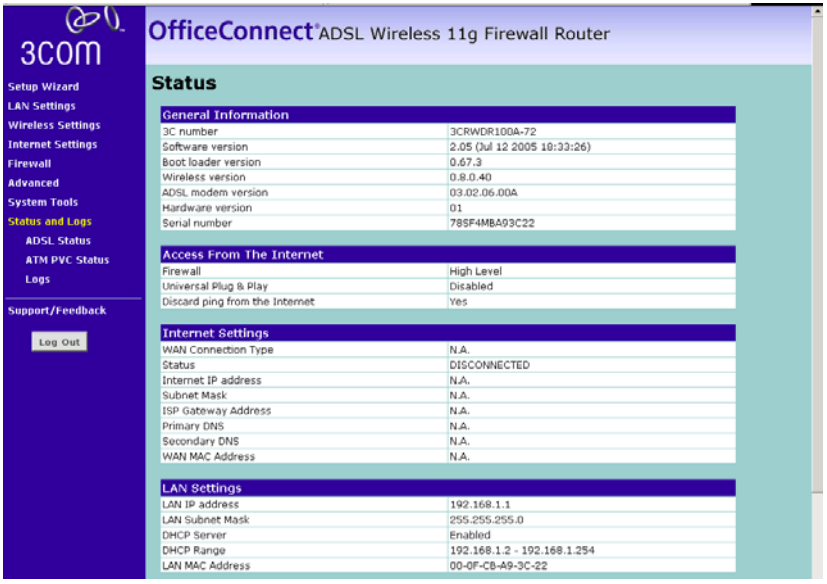
- The *Status* screen will appear (Figure 13). Select *Setup Wizard* from the menu.

  or

- If your Router has not been configured before, the Wizard will launch automatically (refer to Figure 14).

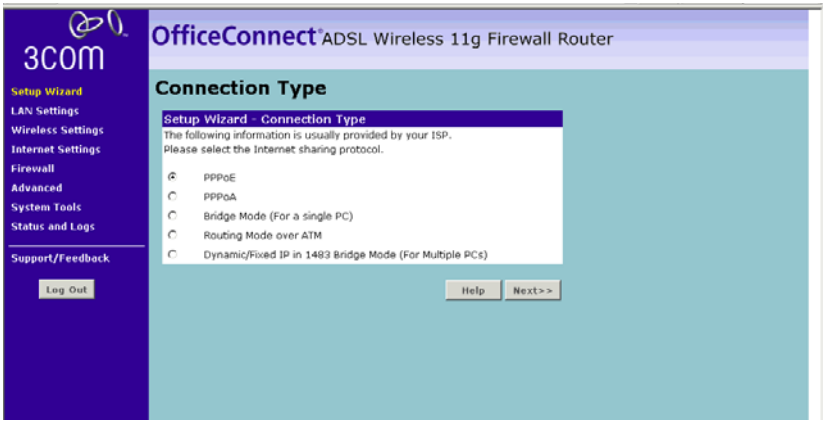
6 You will be guided step by step through a basic setup procedure.

Figure 13 Status Screen



Setup Wizard - Connection Type

Figure 14 Connection Type Screen



The *Connection Type* screen allows you to set up the Router for the type of Internet connection you have. Before setting up your connection type, have your account information from your ISP ready.

Select a DSL mode from the following:

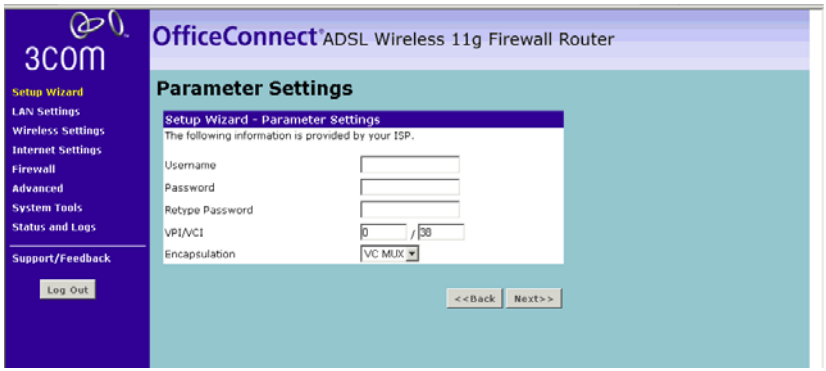
- *PPPoE* — PPP over Ethernet, providing routing for multiple PCs, see page 28
- *PPPoA* — PPP over ATM, providing routing for multiple PCs, see page 29
- *Bridge Mode (for a single PC)* — RFC1483 Bridged Mode, for single PCs only, see page 31
- *Routing Mode over ATM* — RFC1483 Routed Mode, for multiple PCs, see page 32
- *Dynamic/Fixed IP in 1483 Bridge Mode (for multiple PCs),* see page 33

and click *Next*.

For further information on selecting a mode see "Internet Settings" on page 46.

PPPoE Mode

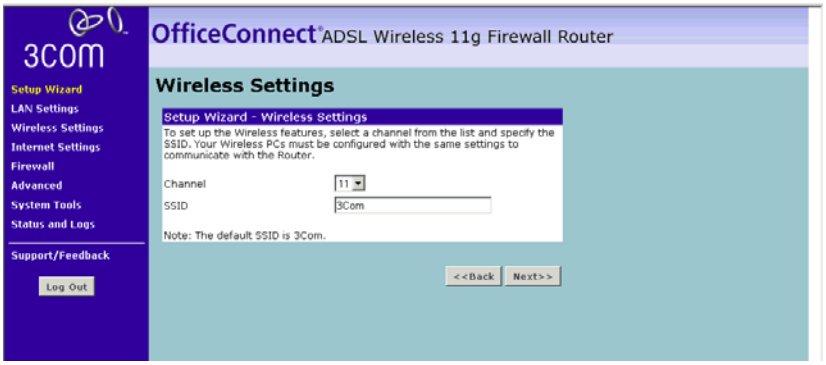
Figure 15 PPPoE Screen



To set up the router for use with a PPP over Ethernet (PPPoE) connection, use the following procedure:

1. Enter your PPP over Ethernet user name in the *Username* text box.
2. Enter your PPP over Ethernet password in the *Password* text box.
3. Re-type your PPP over Ethernet password in the *Retype Password* text box.
4. Enter your VPI and VCI information in the *VPI/VCI* text boxes.
5. Select the encapsulation type (LLC or VC MUX) in the *Encapsulation* drop-down list. This information will have been provided to you by your ISP.
6. Check all of your settings, and then click *Next*. The Wireless Settings screen is displayed.

Figure 16 Wireless Settings Screen

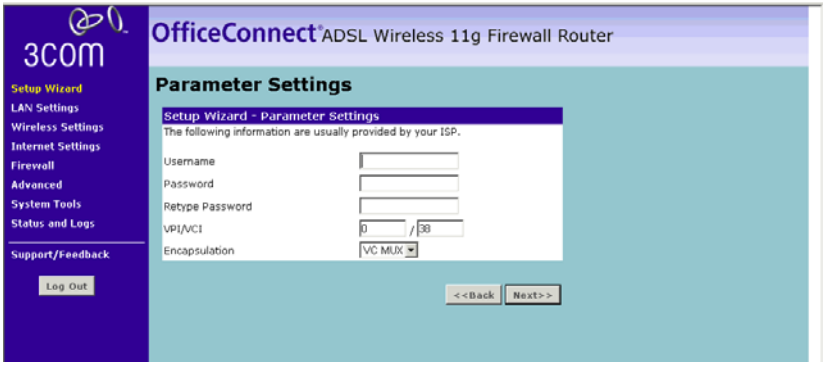


7 Set the Wireless Channel you want to use from the *Channel* drop-down list.

8 Specify the SSID to be used by your Wireless Network in the *SSID* field. If there are other wireless networks in your area, you should give your wireless network a unique name.

PPPoA Mode

Figure 17 PPPoA Screen



To set up the router for use with a PPP over ATM (PPPoA) connection, use the following procedure:

1 Enter your PPP over ATM user name in the *Username* text box.

2 Enter your PPP over ATM password in the *Password* text box.

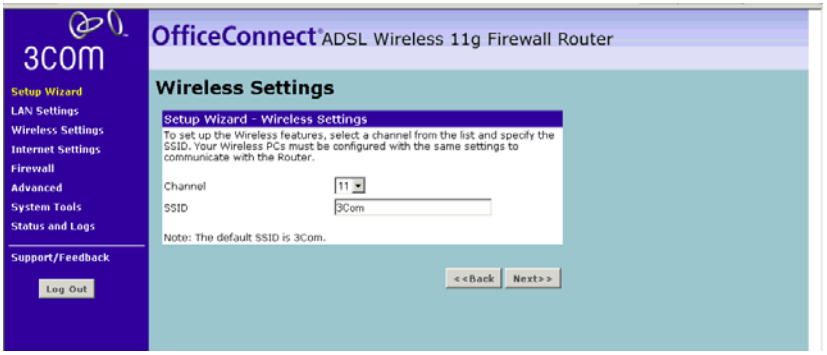
3 Re-type your PPP over ATM password in the *Retype Password* text box.

4 Enter your VPI and VCI information in the *VPI/VCI* text boxes.

5 Select the encapsulation type (LLC or VC MUX) in the *Encapsulation* drop-down list. This information will have been provided to you by your ISP.

6 Check all of your settings, and then click *Next*. The Wireless Settings screen is displayed.

Figure 18 Wireless Settings Screen



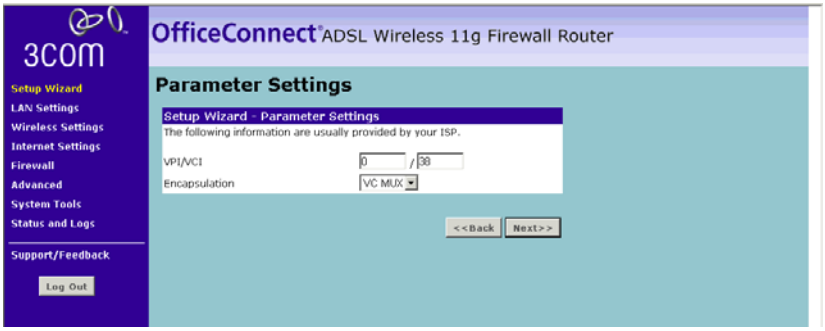
7 Set the Wireless Channel you want to use from the *Channel* drop-down list.

8 Specify the SSID to be used by your Wireless Network in the *SSID* field. If there are other wireless networks in your area, you should give your wireless network a unique name.

Bridge Mode (for a single PC) (RFC 1483 Bridged Mode)

To set up the Router for use with an RFC1483 bridged connection:

Figure 19 Bridged Mode Configuration Screen

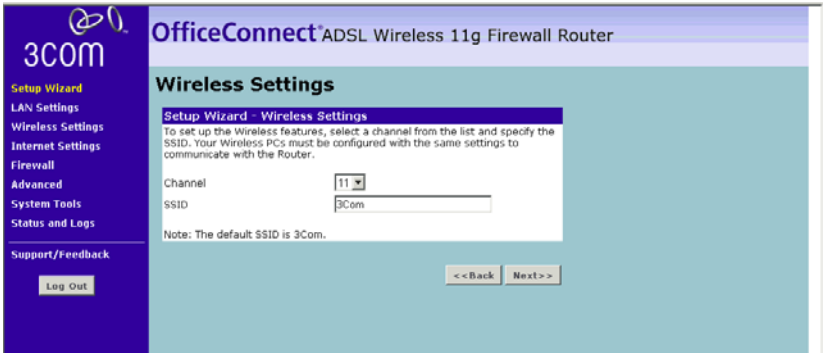


1 Enter your VPI and VCI information in the *VPI/VCI* text boxes.

2 Select the encapsulation type (LLC or VC MUX) in the *Encapsulation* drop-down list. This information will have been provided to you by your ISP.

3 Check all of your settings, and then click *Next*. The Wireless Settings screen is displayed.

Figure 20 Wireless Settings Screen



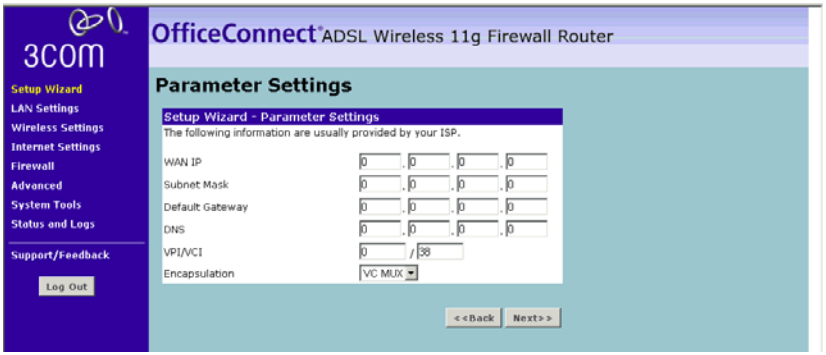
4 Set the Wireless Channel you want to use from the *Channel* drop-down list.

5 Specify the SSID to be used by your Wireless Network in the *SSID* field. If there are other wireless networks in your area, you should give your wireless network a unique name.

Routing Mode over ATM (RFC 1483 Routed Mode)

To set up the Router for use with an RFC1483 routed connection:

Figure 21 Routing Mode Screen



1 Enter your Internet IP address in the *WAN IP* text box.

2 Enter the subnet mask in the *Subnet Mask* text box.

3 Enter the default router in the *Default Gateway* text box.

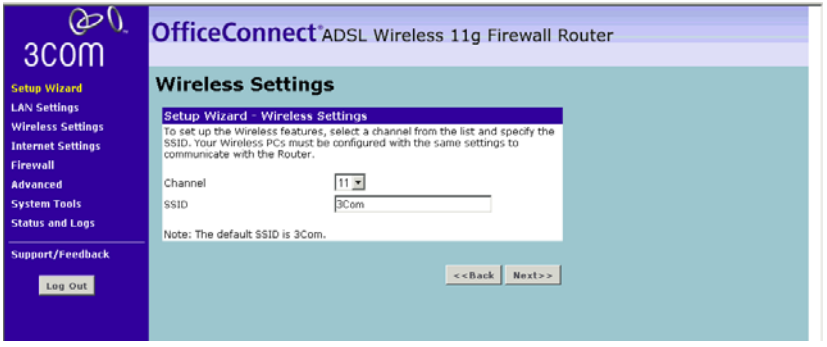
4 Enter the DNS address in the *DNS* text box.

5 Enter your VPI and VCI information in the *VPI/VCI* text boxes.

6 Select the encapsulation type (LLC or VC MUX) in the *Encapsulation* drop-down list. This information will have been provided to you by your ISP.

7 Check all of your settings, and then click *Next*.The Wireless Settings screen is displayed.

Figure 22 Wireless Settings Screen



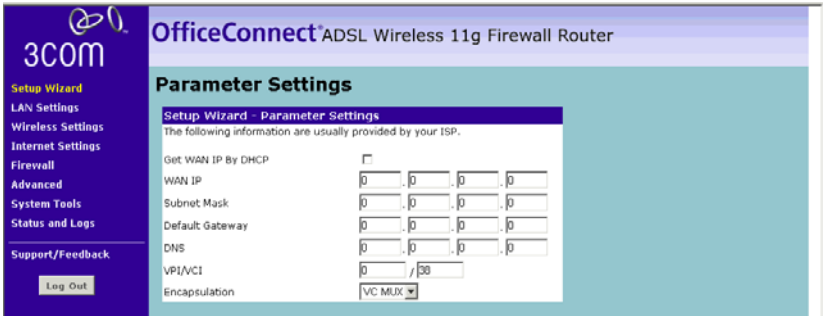
8 Set the Wireless Channel you want to use from the *Channel* drop-down list.

9 Specify the SSID to be used by your Wireless Network in the *SSID* field. If there are other wireless networks in your area, you should give your wireless network a unique name.

Dynamic/Fixed IP in 1483 Bridge Mode (For Multiple PCs)

For bridge mode to work, you need to assign an IP address to the Router. You can either configure the Router to obtain an IP address automatically from a DHCP server or assign a fixed or static IP address to it.

Figure 23 Dynamic/Fixed IP for Bridge Mode Screen



To obtain an IP address automatically from a DHCP server:
Check the *Get WAN IP By DCHP* field, and then click *Next*. The Wireless Settings screen is displayed.

To assign a fixed IP address:

1 Enter your Internet IP address in the *WAN IP* text box.

2 Enter the subnet mask in the *Subnet Mask* text box.

3 Enter the default router in the *Default Gateway* text box.

4 Enter the DNS address in the *DNS* text box.

5 Enter your VPI and VCI information in the *VPI/VCI* text boxes.

6 Select the encapsulation type (LLC or VC MUX) in the *Encapsulation* drop-down list. This information will have been provided to you by your ISP.

7 Check all of your settings, and then click *Next*. The Wireless Settings screen is displayed.

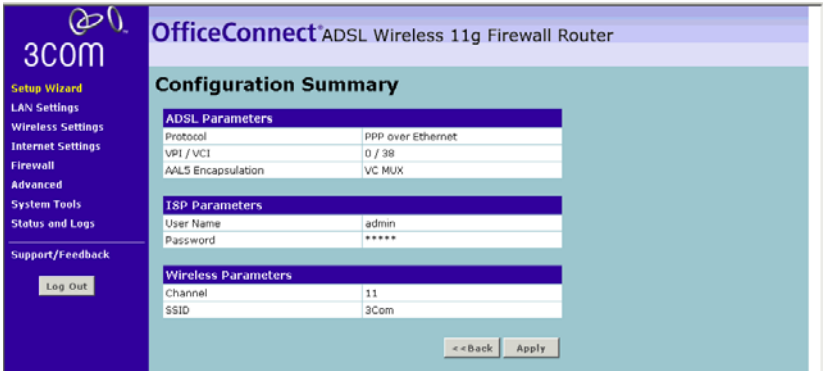
Figure 24 Wireless Settings Screen

8 Set the Wireless Channel you want to use from the *Channel* drop-down list.

9 Specify the SSID to be used by your Wireless Network in the *SSID* field. If there are other wireless networks in your area, you should give your wireless network a unique name.

Configuration Summary

Figure 25 Configuration Summary Screen



When you complete the Setup Wizard, a configuration summary will display. Verify the configuration information of the Router and then click *Apply* to save your settings. 3Com recommends that you print this page for your records.

Your Router is now configured and ready for use.

See Chapter 5 for a detailed description of the Router configuration.

5 CONFIGURING THE ROUTER

Navigating Through the Router Configuration Pages

This chapter describes all the screens available through the Router configuration pages, and is provided as a reference. To get to the configuration pages, browse to the Router by entering the URL in the location bar of your browser. The default URL is **`http://192.168.1.1`** but if you changed the Router LAN IP address during initial configuration, use the new IP address instead. When you have browsed to the Router, log in using your system password (default password is *admin*).

Main Menu

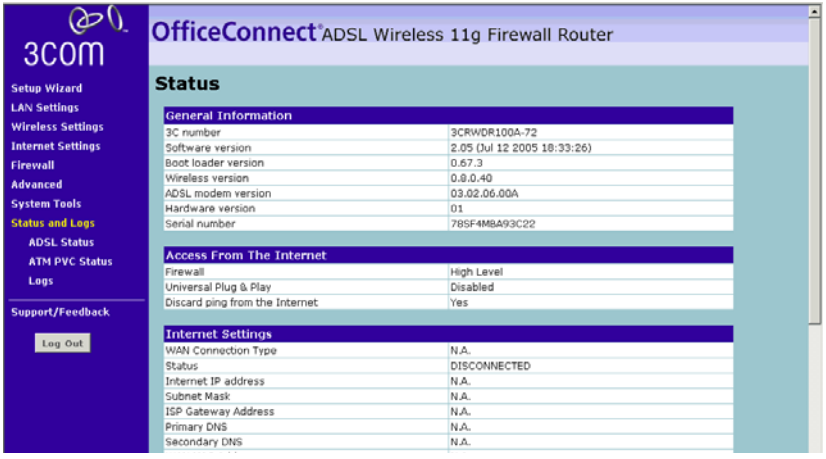
At the left side of all screens is a main menu, as shown in Figure 26 on page 35. When you click on a topic from the main menu, that page will appear in the main part of the screen.

Status Screen

The *Status* screen allows you to view a summary of the Router configuration, including the current Router status.

Status

Figure 26 Status Screen



LAN Setup

Your Router is equipped with a DHCP server that will automatically assign IP addresses to each computer on your network. The factory default settings for the DHCP server will work in most any application. If you need to make changes to the settings, you can do so.

The changes that you can make are:

- Change the Internal IP address of the Router. The default is 192.168.1.1
- Change the Subnet Mask. The default is 255.255.255.0
- Enable/Disable the DHCP Server Function. Default is ON (Enabled)
- Specify the Starting and Ending IP Pool Address. Default is Starting: 2 / Ending: 254
- Specify the IP address Lease Time. Default is Half day
- Specify a local Domain Name. Default is NONE

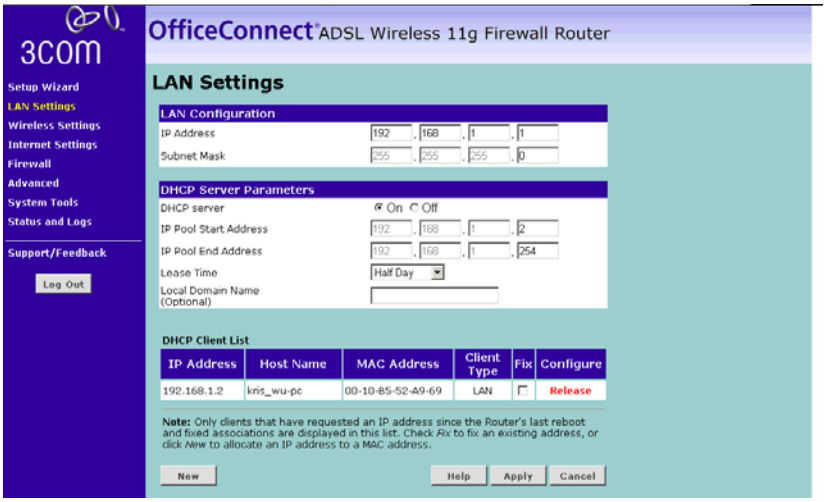
To make changes, click *LAN Settings* on the main menu.

The Router will also provide you with a list of all client computers connected to the network.

LAN Settings

The LAN Settings screen is used to specify the LAN IP address of your Router, and to configure the DHCP server.

Figure 27 LAN Settings Screen



1. Select *LAN Settings* and then specify the Router *IP Address* and *Subnet Mask* in the appropriate fields. The default IP address of the Router is 192.168.1.1.
2. If you want to use the Router as a DHCP Server, click in the *On* check option.
3. If you need to, you can change the range of addresses given out by the Router by changing the *IP Pool Start Address* and *IP Pool End Address* fields.
4. Specify the DHCP Lease time by selecting the required value from the *Lease Time* drop down list. The lease time is the length of time the DHCP server will reserve the IP address for each computer
5. Specify the Local Domain Name for your network.

   This step is optional.
6. Check all of your settings, and then click *Apply*.

DHCP Clients List

The DHCP Clients List provides details on the devices that have received IP addresses from the Router. The list is only created when the Router is set up as a DHCP server. For each device that is connected to the LAN the following information is displayed:

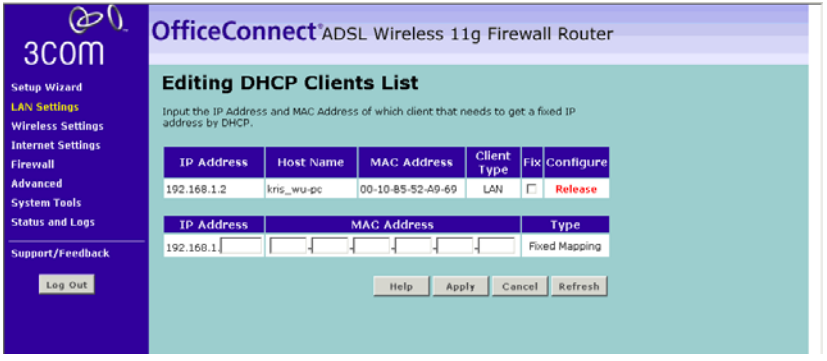
- *IP address* — The Internet Protocol (IP) address issued to the client machine.
- *Host Name* — The client machine's host name, if configured.
- *MAC Address* — The Media Access Control (MAC) address of the client's network card.
- *Client Type* — Whether the client is connected to the Router by wired or wireless connection.

As you connect more devices, the client list will grow to a maximum number of 253 clients.

From this section of the screen, you can do the following:

- In the table, check the *Fix* text box to permanently fix the IP address.
- In the table, click *Release* to release the displayed IP address.
- Click *New* to allocate an IP address to a MAC address. If you click New, a screen similar to that shown in Figure 28 will be displayed. Enter the required details and click *Apply* to save your settings.

Figure 28 Editing DHCP Clients List Screen

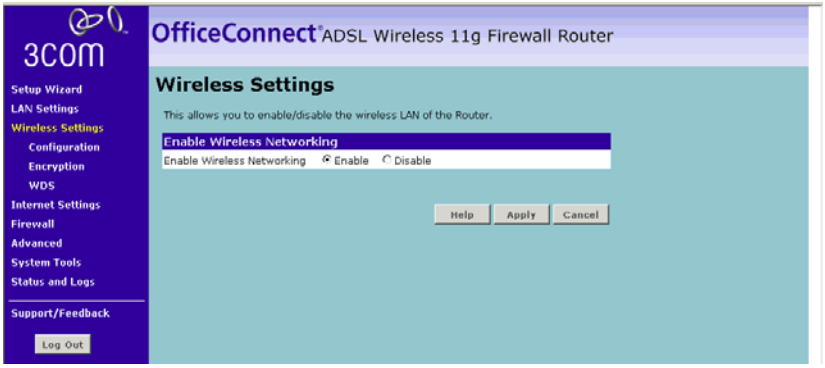


The DHCP server will give out addresses to both wired and wireless clients.

Wireless Settings

From these pages, you can configure the settings for wireless connections.

Figure 29 Wireless Settings Screen



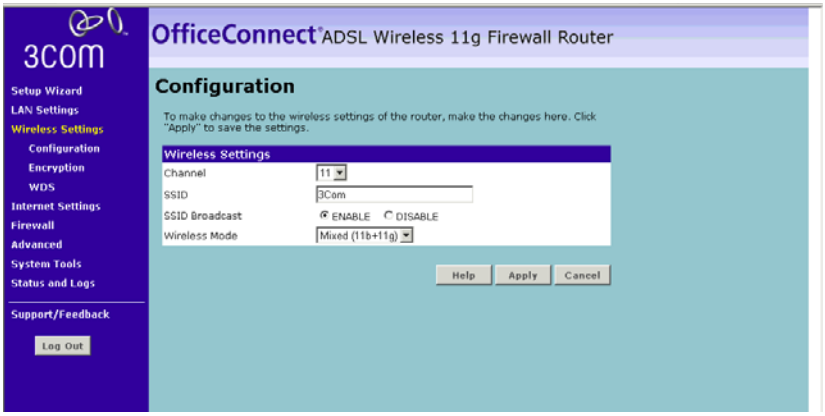
This screen allows you to enable or disable the wireless section of your LAN. When disabled, no wireless PCs can gain access to either the Internet or other PCs on your Wired or Wireless LAN through this Router.

Select the required setting, and press *Apply*.

Configuring Wireless

Click *Configuration* on the left-hand menu, the Wireless Configuration Screen displays.

Figure 30 Wireless Configuration Screen



To enable Wireless function:

1 Select the Wireless Channel you want to use from the *Channel* drop-down list.

2 Specify the SSID to be used by your Wireless Network in the *SSID* field. If there are other wireless networks in your area, you should give your wireless network a unique name.

3 Enable or disable *SSID Broadcast*.

A feature of many wireless network adapters is that a computer's SSID can be set to ANY, which means it looks randomly for any existing wireless network. The available networks are then displayed in a site survey, and your computer can select a network. By clicking *disable*, you can block this random search, and set the computer's SSID to a specific network (for example, WLAN). This increases network security. If you decide to enable *SSID Broadcast*, ensure that you know the name of your network first.

4 In the *Wireless Mode* drop down list, select whether your router will operate in 11b mode only, 11g mode only, or mixed 11b and 11g.

5 Click *Apply*.

Encryption This feature prevents any non-authorized party from reading or changing your data over the wireless network.

Figure 31 Encryption Screen

From this screen, you can select the wireless security mode that you want to use. There are five selections:

- Disabled (see page 41)

- WPA-PSK (no Server) (see page 41)
- 128-bit WEP (see page 42)
- 64-bit WEP (see page 43)
- WPA (with RADIUS Server) (see page 44)

Select the required value from the drop down list, and press *Apply*.

Disabled

In this mode, wireless transmissions will not be encrypted, and will be visible to everyone. However, when setting up or debugging wireless networks, it is often useful to use this security mode.

WPA-PSK (no server)

WPA (WiFi Protected Access) provides dynamic key changes and constitutes the best security solution. In a wireless network where not all devices support WPA, WEP (Wired Equivalent Privacy) should be used.

Figure 32 WPA-PSK (no server) Screen

To enable WPA-PSK:

1 Enter the pre-shared key in the *Pre-shared Key (PSK)* field. The pre-shared key is a password, in the form of a word, phrase or series of letters and numbers. The key must be between 8 and 63 characters long and can include spaces and symbols.

Note that each client that connects to the network must use the same key.

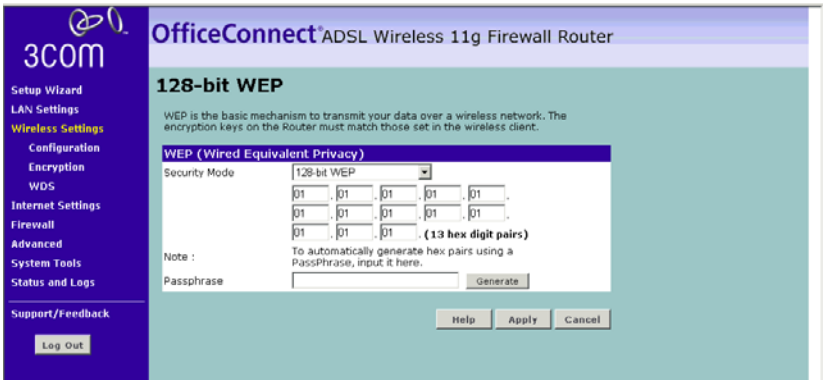
2 Optionally, check the Hide PSK check box, if you want the key that you enter to be shown on the screen as a series of asterisks (*).

3 Click *Apply*.

128-bit WEP

WEP is the basic mechanism to transmit your data securely over the wireless network. Matching encryption keys must be setup on your Router and wireless client devices to use WEP.

Figure 33 128-bit WEP Screen



To enable 128-bit WEP:

1 You can enter the 128-bit WEP key manually:

- enter your WEP key as 13 pairs of hex digits (0-9, A-F).

Or you can generate the 128-bit WEP key automatically:

- enter a memorable passphrase in the *Passphrase* box, and then click Generate to generate the hex keys from the passphrase.

The WEP keys on each device on the wireless network must be identical.

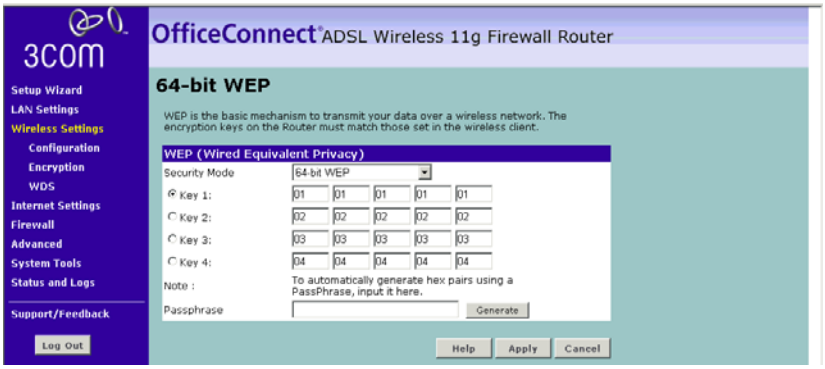
In 128-bit WEP mode, only one WEP key (key 1) can be specified.

2 Click *Apply*.

64-bit WEP

WEP is the basic mechanism to transmit your data securely over the wireless network. Matching encryption keys must be setup on your Router and wireless client devices to use WEP.

Figure 34 64-bit WEP Screen



To enable 64-bit WEP:

1 Manually enter the key:

- enter the WEP key as 5 pairs of hex digits (0-9, A-F).

Automatically generate the key:

- enter a memorable passphrase in the *Passphrase* box, and then click Generate to generate the hex keys from the passphrase.

For 64-bit WEP, you can enter up to four keys, in the fields *Key 1* to *Key 4*. The radio button on the left hand side selects the key that is used in transmitting data.

Note that all four WEP keys on each device in the wireless network must be identical.

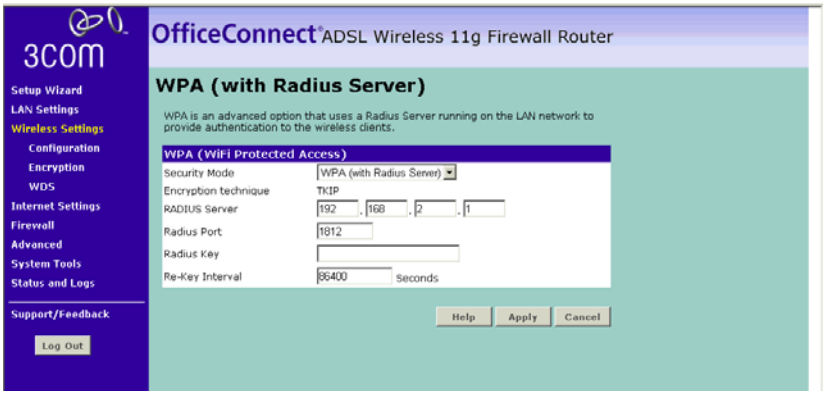
2 Click *Apply*.

WPA (with RADIUS Server)

WPA (WiFi Protected Access) provides dynamic key changes and constitutes the best security solution. On a wireless network where not all devices support WPA, WEP (Wired Equivalent Privacy) should be used.

Wireless Protected Access using a server to distribute keys to the clients, and this function requires that a Radius server is running on the network.

Figure 35 WPA (with RADIUS Server) Screen



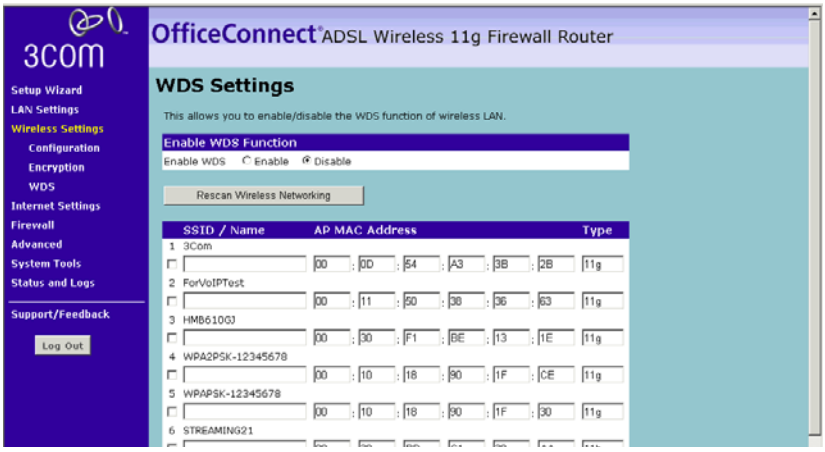
To enable WPA with Radius server:

1. Enter the IP address of the RADIUS server on your network into the *RADIUS Server* field.
2. Enter the port that the RADIUS server is operating on in the *RADIUS Port* field.
3. Enter the key for the RADIUS server in the *RADIUS Key* field.
4. By default, the WPA keys are changed every hour, but if you want to change this you can do so by specifying the required time in the *Re-key Interval* field, in minutes.
5. Click *Apply*.

Wireless WDS Settings

The Router supports WDS (Wireless Distribution System). WDS enables one or more Access Points to rebroadcast received signals to extend range and reach, though this can affect the overall throughput of data.

Figure 36 Wireless WDS Settings Screen



To enable wireless repeating:

1. Check the *Enable WDS* check box.
2. Enter the MAC address(es) of one or more access points in the *AP MAC Address* table.
3. Click *Apply*.

To refresh the list of available access points, click *Rescan Wireless Networking*.

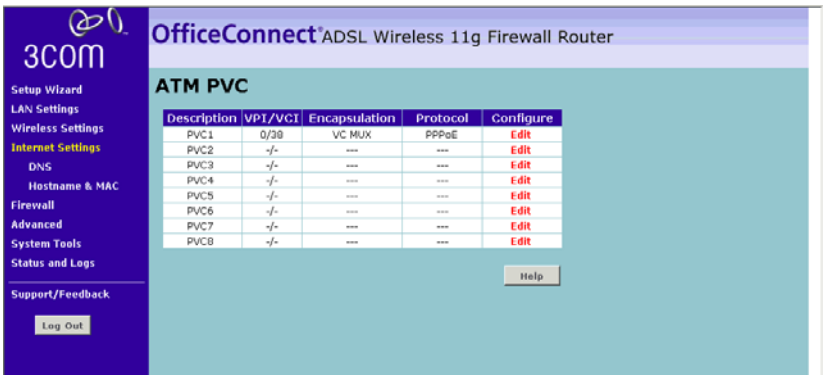
Internet Settings

From these pages, you can configure the settings for your DSL connection.

Connection Type

The Internet Settings screen is used to configure the parameters for your DSL connection. The information necessary to complete these screens should be obtained from your ISP. Check with your ISP as for what type of connection you should choose.

Figure 37 Internet Settings Screen



There are six options available for the DSL connection mode:

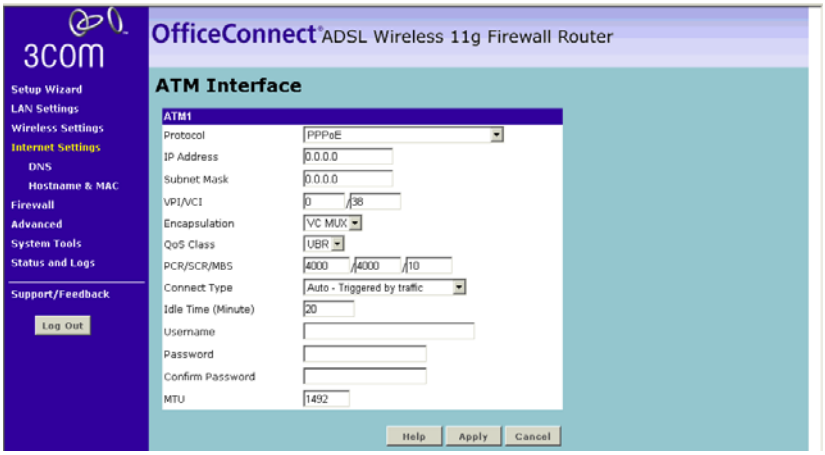
- *PPPoE* — PPP over Ethernet, providing routing for multiple PCs (see page 47)
- *PPPoA* — PPP over ATM, providing routing for multiple PCs (see page 49)
- *Bridge Mode* — RFC1483 Bridged Mode, for single PCs only (see page 51)
- *Routing Mode over ATM* — RFC1483 Routed Mode, for multiple PCs (see page 52)
- *Dynamic/Fixed IP in 1483 Bridge Mode (for multiple PCs)* (see page 53)
- *Disable* — To disable the Internet connection function (see page 55)

Click *Edit* to set the detail settings.

PPPoE

PPP over Ethernet, providing routing for multiple PCs. To configure this page correctly, you should obtain the information on this page from your ISP.

Figure 38 PPPoE Settings Screen



1. Select *PPPoE* from the *Protocol* drop-down menu.
2. Then enter the IP address and Subnet Mask information provided by your ISP into the *IP address* and *Subnet Mask* fields.
3. Enter the VPI and VCI parameters provided to you by your ISP in the *VPI* and *VCI* fields.
4. Select the encapsulation type (LLC or VC MUX) in the *Encapsulation* field. This information will have been provided to you by your ISP.
5. Select the type of Quality of Service (CBR, UBR or VBR) in the QoS field.
    - CBR (constant bit rate): the CBR service class is intended for real-time applications, for example, those requiring tightly constrained delay and delay variation, such as voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service.
    - UBR (unspecified bit rate): the UBR service class is intended for delay-tolerant or non-real-time applications, for example, those which do not require tightly constrained delay and delay variation, such as traditional computer communications applications. The UBR service may be considered as "best effort service".

- VBR (variable bit rate): QoS class defined by the ATM Forum for ATM networks. VBR is subdivided into a real time (RT) class and non-real time (NRT) class. VBR (RT) is used for connections in which there is a fixed timing relationship between samples. VBR (NRT) is used for connections in which there is no fixed timing relationship between samples, but that still need a guaranteed QoS. Compare with ABR, CBR, and UBR.

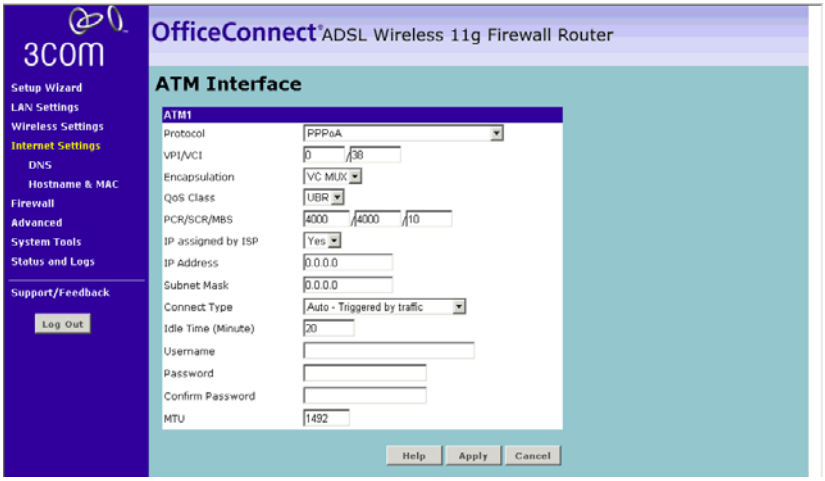
6. Enter the PCR/SCR/MBS values.
7. Select the connection type from the Connect Type drop-down menu.
   - *Always Connected* means that Internet connection to your ISP is always on.
   - *Auto - Triggered by Traffic* means your Router will automatically connect to your ISP every time a PC needs to access the Internet.
   - *Manual - Start in Disconnected* means that after re-booting the Router, the Internet connection will need to be re-established manually by the user.
   - *Manual - Start in Connected* means that after re-booting the Router, it will automatically establish connection to your ISP.
   - Manual - Start in Last State means that after re-booting the Router, the Internet connection will stay in the previous condition before the reboot.
8. If you want your Router to automatically disconnect from the Internet after a period of inactivity, specify a time in the *Idle Time (Minutes)* field.

   Enter a value of 0 to disable this timeout.
9. Enter the *User Name* assigned to you by your ISP in the *User Name* field. And enter the password assigned to you by your ISP in the *Password* field. Re-enter your password in the *Confirm Password* field.
10. Enter the *MTU* value supplied by your ISP. If you do not know this, leave it at the default value.
11. Click *Apply*.

PPPoA

PPP over ATM, this is a popular choice among European DSL providers. To configure this page correctly, you should obtain the information on this page from your ISP.

Figure 39 PPPoA Settings Screen



1. Select *PPPoA* from the *Protocol* drop-down menu.
2. Enter the VPI and VCI parameters provided to you by your ISP in the *VPI* and *VCI* fields.
3. Select the encapsulation type (LLC or VC MUX) in the *Encapsulation Type* field. This information is provided to you by your ISP.
4. Select the type of Quality of Service (CBR, UBR or VBR) in the QoS field.
   - CBR (constant bit rate): the CBR service class is intended for real-time applications, for example, those requiring tightly constrained delay and delay variation, such as voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service.
   - UBR (unspecified bit rate): the UBR service class is intended for delay-tolerant or non-real-time applications, for example, those which do not require tightly constrained delay and delay variation, such as traditional computer communications applications. The UBR service may be considered as "best effort service".
   - VBR (variable bit rate): QoS class defined by the ATM Forum for ATM networks. VBR is subdivided into a real time (RT) class and

non-real time (NRT) class. VBR (RT) is used for connections in which there is a fixed timing relationship between samples. VBR (NRT) is used for connections in which there is no fixed timing relationship between samples, but that still need a guaranteed QoS. Compare with ABR, CBR, and UBR.

5. Enter the PCR/SCR/MBS values.
6. IP assigned by ISP:
   - If your ISP assigns your IP address dynamically then select *Yes* in the *IP assigned by ISP* field and proceed to step 7.
   - If your ISP has assigned you a fixed or static IP address, select *No* in the *IP assigned by ISP* field.
     Then enter the IP address and Subnet Mask information provided by your ISP into the *IP address* and *Subnet Mask* fields.
7. Select the connection type from the Connect Type drop-down menu.
   - *Always Connected* means that Internet connection to your ISP is always on.
   - *Auto - Triggered by Traffic* means your Router will automatically connect to your ISP every time a PC needs to access the Internet.
   - *Manual - Start in Disconnected* means that after re-booting the Router, the Internet connection will need to be re-established manually by the user.
   - *Manual - Start in Connected* means that after re-booting the Router, it will automatically establish connection to your ISP.
   - Manual - Start in Last State means that after re-booting the Router, the Internet connection will stay in the previous condition before the reboot.
8. If you want your Router to automatically disconnect from the Internet after a period of inactivity, specify a time in the *Idle Time (Minutes)* field.

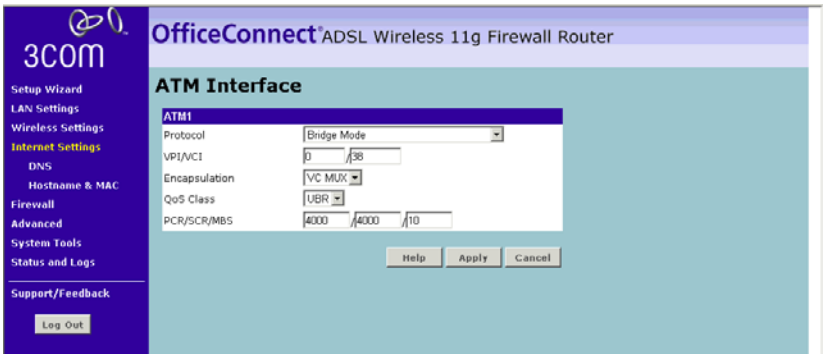
   Enter a value of 0 to disable this timeout.
9. Enter the User Name assigned to you by your ISP in the *User Name* field.

   Enter the password assigned to you by your ISP in the *Password* field. Re-enter your password in the *Confirm Password* field.
10. Enter the *MTU* value supplied by your ISP. If you do not know this, leave it at the default value.
11. Click *Apply*.

Bridge Mode (For a Single PC) (RFC 1483 Bridged Mode)

If the ISP limits some specific computers to access Internet, that means only the traffic to/from these computers will be forwarded and the other will be filtered. In this case, bridge modem is used to connect to the ISP. The ISP will generally give one Internet account and limit only one computer to access the Internet. Check with your ISP to determine if this mode is used for your DSL connection. To configure this page correctly, you should also obtain the information on this page from your ISP.

Figure 40 Bridge Mode (For Single PC) Screen



After clicking Edit on the ATM PVC page, the ATM Interface page appears.

1. Select *Bridge Mode* from the *Protocol* drop-down menu.
2. Enter the VPI and VCI parameters provided to you by your ISP in the *VPI* and *VCI* fields.
3. Select the encapsulation type (LLC or VC MUX) in the *Encapsulation Type* field. This information will have been provided to you by your ISP.
4. Select the type of Quality of Service that you want from the QoS Class drop-down menu.
    - CBR (constant bit rate): the CBR service class is intended for real-time applications, for example, those requiring tightly constrained delay and delay variation, such as voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service.
    - UBR (unspecified bit rate): the UBR service class is intended for delay-tolerant or non-real-time applications, for example, those which do not require tightly constrained delay and delay variation,

such as traditional computer communications applications. The UBR service may be considered as "best effort service".

- VBR (variable bit rate): QoS class defined by the ATM Forum for ATM networks. VBR is subdivided into a real time (RT) class and non-real time (NRT) class. VBR (RT) is used for connections in which there is a fixed timing relationship between samples. VBR (NRT) is used for connections in which there is no fixed timing relationship between samples, but that still need a guaranteed QoS. Compare with ABR, CBR, and UBR.

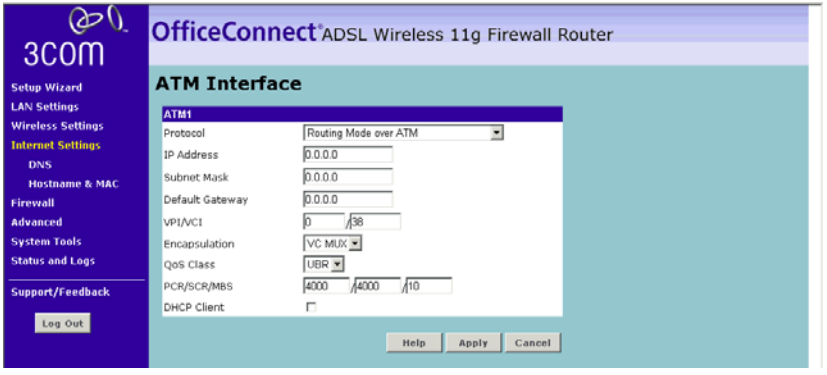
5 Enter the PCR/SCR/MBS values.

6 Click *Apply*.

Routing Mode over ATM (RFC 1483 Routed Mode)

This mode is commonly used with either dynamic or static IP addressing. In this mode the WAN ADSL port will be configured with an IP address provided by the ISP. To configure this page correctly, you should obtain the information on this page from your ISP.

Figure 41 Routing Mode over ATM Screen



After clicking Edit on the ATM PVC page, the ATM Interface page appears.

1 Select *Routing Mode over ATM* from the *Protocol* drop-down menu.

2 Enter the IP address, Subnet Mask and Default Gateway information provided by your ISP into the *IP address*, *Subnet Mask* and *ISP Default Gateway* fields.

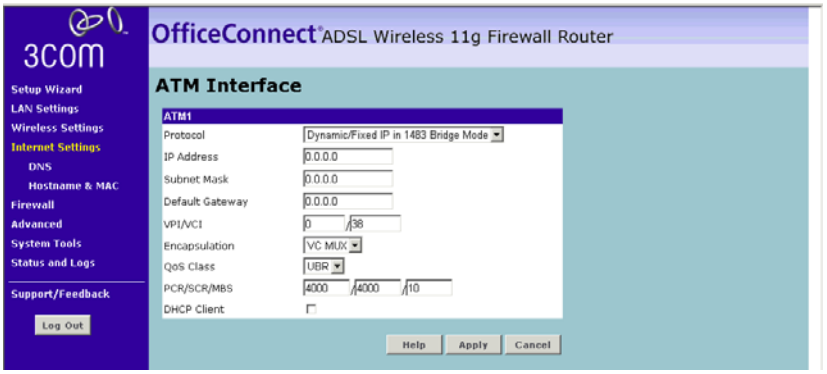
3 Enter the VPI and VCI parameters provided to you by your ISP in the *VPI* and *VCI* fields.

4. Select the encapsulation type (LLC or VC MUX) in the *Encapsulation* field. This information will have been provided to you by your ISP.
5. Select the type of Quality of Service that you want from the QoS Class drop-down menu.
   - CBR (constant bit rate): the CBR service class is intended for real-time applications, for example, those requiring tightly constrained delay and delay variation, such as voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service.
   - UBR (unspecified bit rate): the UBR service class is intended for delay-tolerant or non-real-time applications, for example, those which do not require tightly constrained delay and delay variation, such as traditional computer communications applications. The UBR service may be considered as "best effort service".
   - VBR (variable bit rate): QoS class defined by the ATM Forum for ATM networks. VBR is subdivided into a real time (RT) class and non-real time (NRT) class. VBR (RT) is used for connections in which there is a fixed timing relationship between samples. VBR (NRT) is used for connections in which there is no fixed timing relationship between samples, but that still need a guaranteed QoS. Compare with ABR, CBR, and UBR.
6. Enter the PCR/SCR/MBS values.
7. If your ISP uses DHCP to automatically assign IP addresses, check the *DHCP Client* box.
8. Click *Apply*.

Dynamic/Fixed IP in 1483 Bridge Mode (For Multiple PCs)

Your ISP uses fixed/dynamic IP to provide the Internet connection. To configure this function correctly, you should obtain the information on this page from your ISP.

Figure 42 Dynamic/Fixed IP for Bridge Mode Screen



After clicking Edit on the ATM PVC page, the ATM Interface page appears.

1. Select *Dynamic/Fixed IP for Bridge Mode* from the *Protocol* drop-down menu.
2. Enter the IP address, Subnet Mask and Default Gateway information provided by your ISP into the *IP address*, *Subnet Mask* and *ISP Default Gateway* fields.
3. Enter the VPI and VCI parameters provided to you by your ISP in the *VPI* and *VCI* fields.
4. Select the encapsulation type (LLC or VC MUX) in the *Encapsulation* field. This information will have been provided to you by your ISP.
5. Select the type of Quality of Service that you want from the QoS Class drop-down menu.
    - CBR (constant bit rate): the CBR service class is intended for real-time applications, for example, those requiring tightly constrained delay and delay variation, such as voice and video applications. The consistent availability of a fixed quantity of bandwidth is considered appropriate for CBR service.
    - UBR (unspecified bit rate): the UBR service class is intended for delay-tolerant or non-real-time applications, for example, those which do not require tightly constrained delay and delay variation, such as traditional computer communications applications. The UBR service may be considered as "best effort service".
    - VBR (variable bit rate): QoS class defined by the ATM Forum for ATM networks. VBR is subdivided into a real time (RT) class and

non-real time (NRT) class. VBR (RT) is used for connections in which there is a fixed timing relationship between samples. VBR (NRT) is used for connections in which there is no fixed timing relationship between samples, but that still need a guaranteed QoS. Compare with ABR, CBR, and UBR.

6 Enter the PCR/SCR/MBS values.

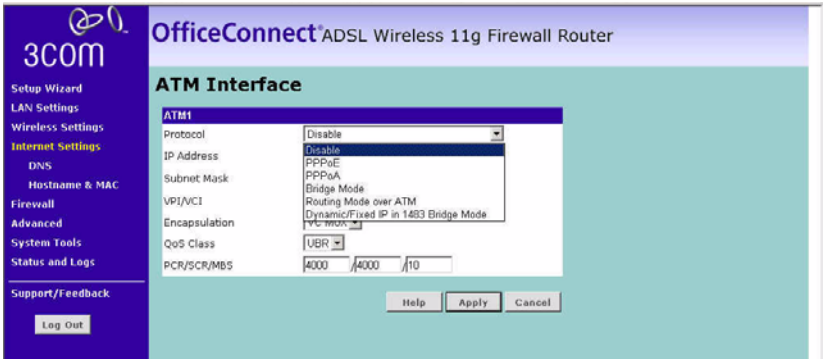
7 If your ISP uses DHCP to automatically assign IP addresses, check the *DHCP Client* box.

8 Click *Apply*.

Disable

Selecting this option means that you do not want your Router to connect to the Internet.

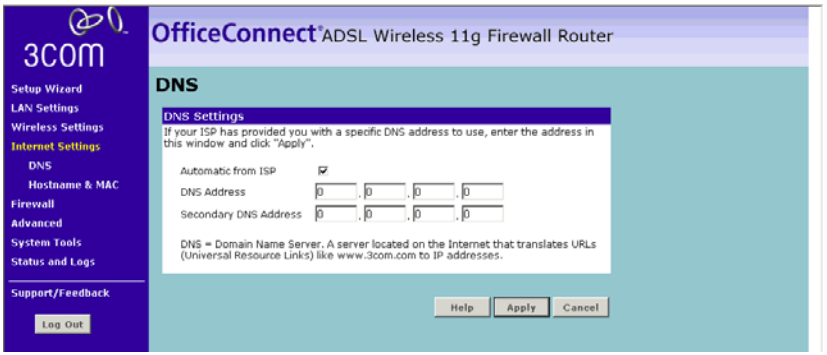
Figure 43 Disable Internet Connection Screen



DNS Domain Name Service (or Server), an Internet service that translates domain names into IP addresses. Because domain names are alphabetic, they're easier to remember. The Internet however, is really based on IP addresses. Every time you use a domain name, a DNS service must translate the name into the corresponding IP address. For example, the domain name www.example.com might translate to 198.105.232.4.

Check with your ISP for information on this page.

Figure 44 DNS Screen



If the DNS information is automatically provided by your ISP every time you connect to it, check the *Automatic from ISP* box.

If your ISP provided you with specific DNS addresses to use, enter them into the appropriate fields on this screen and click *Apply*.

Many ISPs do not require you to enter this information into the Router. If you are using a Static IP connection type, you may need to enter a specific DNS address and secondary DNS address for your connection to work properly. If your connection type is Dynamic, PPPoA or PPPoE, it is likely that you do not have to enter a DNS address.

Hostname & MAC

To configure the Hostname and MAC Address information for your Router, select *Internet Settings*, then from the sub-menu select *Hostname & MAC*. The Hostname and MAC Address screen displays.

Figure 45 Hostname and MAC Address Screen

3COM
OfficeConnect ADSL Wireless 11g Firewall Router
Setup Wizard
LAN Settings
Wireless Settings
Internet Settings
DNS
Hostname & MAC
Firewall
Advanced
System Tools
Status and Logs
Support/Feedback
Log Out
Hostname and MAC Address
Some ISPs require that you enter the host name and/or clone (copy) the MAC address of your computer's network card into the Router.
If you need to specify the host name, MAC address to connect to your ISP, enter the host name and MAC address in this window and click "Apply".
Hostname and MAC Address Settings
Host Name
WAN MAC Address
Clone Computer's MAC Address
Clone
Set to Default MAC Address
Reset MAC
Help
Apply
Cancel

Some ISPs require a host name. If your ISP has this requirement, enter the host name in the *Host Name* field.

1 Three different ways to configure this page:

- If your ISP requires an assigned MAC address, enter the values for a *WAN MAC address*

  or

- If the computer you are now using is the one that was previously connected directly to the cable modem, select *Clone*

  or

- To reset the MAC Address to the default, select *Reset MAC*.

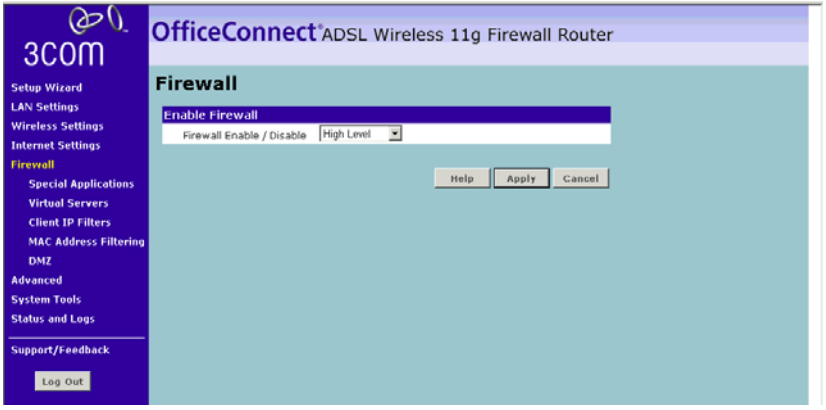
2 Click *Apply* to save the settings.

Firewall

From these pages, you can configure settings for the firewall.

Your Router is equipped with a firewall that will protect your network from a wide array of common hacker attacks including Ping of Death (PoD) and Denial of Service (DoS) attacks. You can turn the firewall function off if needed. Turning off the firewall protection will not leave your network completely vulnerable to hacker attacks, but 3Com recommends that you leave the firewall enabled whenever possible.

Figure 46 Firewall Screen



To enable the firewall function:

1 Select the level of protection (High Level, Medium Level, Low Level, or Disable) that you desire from the *Firewall Enable/Disable* drop-down menu.

2 Click *Apply*.

Special Applications

Special Applications let you choose specific ports to be open for specific applications to work properly with the Network Address Translation (NAT) feature of the Router.

Figure 47 Special Applications Screen

3com
OfficeConnect ADSL Wireless 11g Firewall Router
Setup Wizard
LAN Settings
Wireless Settings
Internet Settings
Firewall
Special Applications
Virtual Servers
Client IP Filters
MAC Address Filtering
DMZ
Advanced
System Tools
Status and Logs
Support/Feedback
Log Out
Special Applications
Some applications such as games, video conferencing, remote access applications and others require that specific ports in the Router's firewall be opened for access by the applications. You can configure the port settings from this screen. Note: Opening ports in your firewall can pose a security risk. You can enable and disable settings very quickly. It is recommended that you disable the settings when you are not using a specific application.
Popular applications
-- select one --
Copy to
Trigger Port
Trigger Type
Public Port
Public Type
Enabled
TCP
UDP
Clear

A list of popular applications has been included to choose from. Select your application from the *Popular Applications* drop-down list. Then select the row that you want to copy the settings to from the *Copy To* drop down list, and click *Copy To*. The settings will be transferred to the row you specified. Click *Apply* to save the setting for that application.

If your application is not listed, you will need to check with the application vendor to determine which ports need to be configured. You can manually input this port information into the Router.

To manually enter the port information:

1. Specify the trigger port (the one used by the application when it is initialized) in the *Trigger Port* column, and specify whether the trigger is TCP or UDP.
2. Specify the Public Ports used by the application, that will need to be opened up in the firewall for the application to work properly. Also specify whether these ports are TCP or UDP.
3. Click *Apply.*

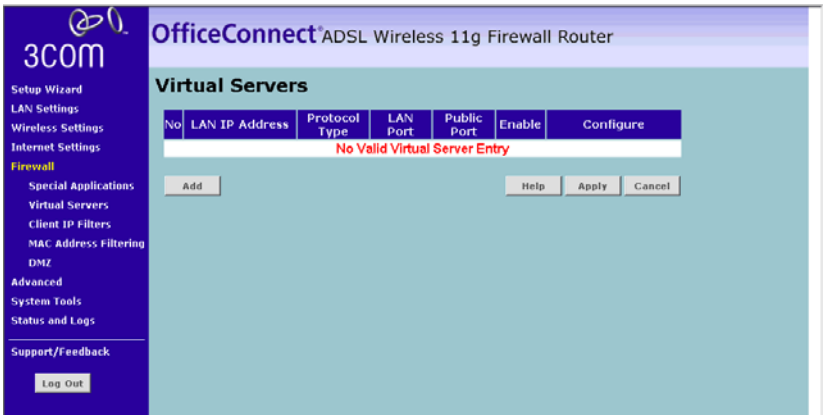
Virtual Servers

The Virtual servers feature allows you to route external (Internet) calls for services such as a web server (port 80), FTP server (Port 21), or other applications through your Router to your internal network. Since your internal computers are protected by a firewall, machines from the Internet cannot get to them because they cannot be 'seen'.

If you need to configure the Virtual Server function for a specific application, you will need to contact the application vendor to find out which port settings you need.

The maximum number of virtual servers that can be configured is 20.

Figure 48 Virtual Servers Screen



To configure your virtual servers:

1. Click *Add*, or *Edit* if you want to edit an existing record.
2. Enter the IP address in the space provided for the internal machine.

3 Enter the port type (TCP, UDP, or both TCP and UDP).

4 Specify the public port that will be seen by clients on the Internet, and the LAN port which the traffic will be routed to.

5 You can enable or disable each Virtual Server entry by checking or unchecking the appropriate *Enable* check box.

6 Click *Apply* to save the changes for each Virtual Server entry.

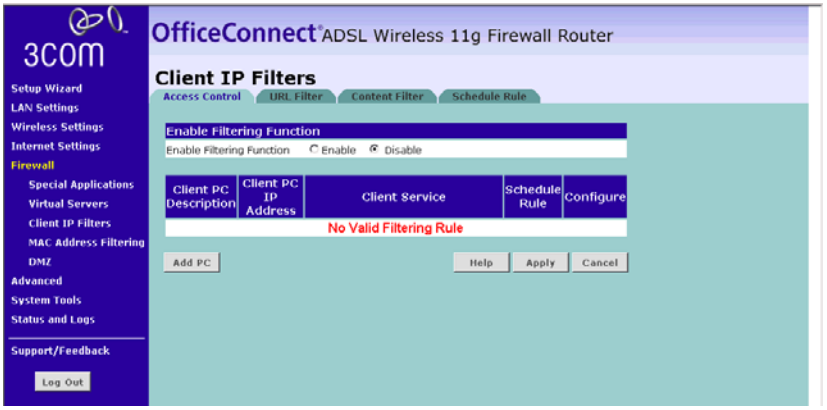
Client IP Filters

The Router can be configured to restrict access to the Internet, e-mail or other network services at specific days and times. Restriction can be set for a single computer, a range of computers, or multiple computers.

Access Control

Access Control allows users to define the traffic type permitted or not-permitted to the Internet.

Figure 49 Access Control Screen



This screen allows you to enable or disable all Access Control rules. Select the appropriate *Enable Filtering Function* option, and click *Apply* to save the settings.

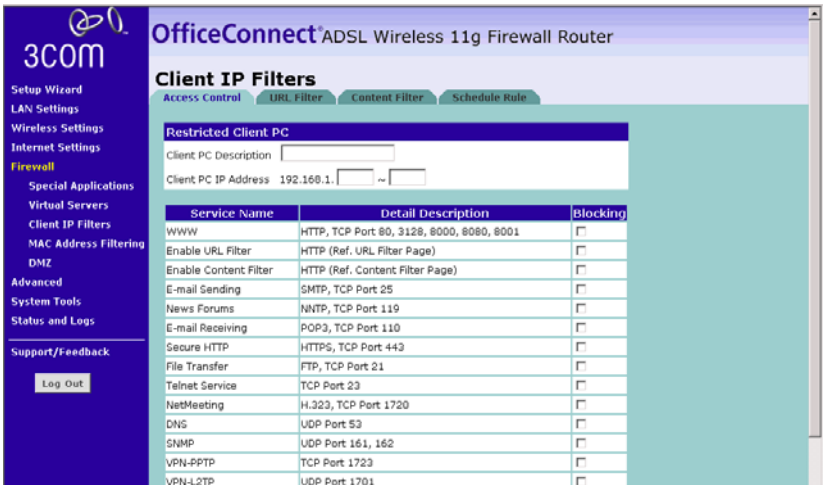
To edit or delete specific existing Access Control rules, click on *Edit* or *Delete* for the appropriate access control rule.

To configure new access control to specific Internet services:

1 Click on *Add PC.*

A screen similar to Figure 50 will appear.

Figure 50 Add PC Screen



2 Enter a description for the filter you are defining in the *Client PC Description* field.

3 Enter the IP address or IP address range into the *Client PC IP Address* fields.

4 Select the services to be blocked. A list of popular services is given on this screen, to block a particular service place a check in the appropriate *Blocking* check box.

If the service to be restricted is not listed on the screen, you can enter a custom range of ports at the bottom of the page, under *User Defined Blocked Ports.*

5 If you want the restriction to only apply at certain times, select the schedule rule to apply from the *Schedule Rule* drop-down list.

Note that Schedule Rules are defined on the Schedule Rule page (see page 64).

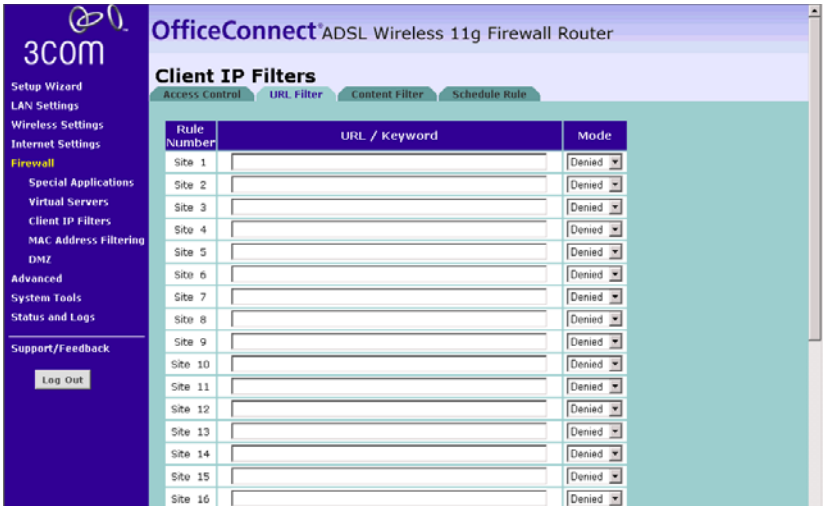
6 Click *OK* to add the settings.

URL Filter

To configure the URL filter feature, use the table on the URL Filter page to specify the Web sites (www.somesite.com) and/or keywords you want to filter on your network.

For example, entering a keyword of ***xxx*** would block access to any URL that contains the string ***xxx***.

Figure 51 URL Filter Screen



To complete this configuration, you will need to create or modify an access rule in the *Access Control* section (see "Access Control" on page 60).

From the *Access Control Add PC* screen, (Figure 50) check the option: *Enable URL Filter*, and *Enable Content Filter*, to filter out the Web sites and keywords specified in the *URL Filter page*, and *Content Filter page*.

Content Filter

You can use the list on the Content Filter page to specify the type of content that you want to filter out.

The Router comes with a 14-day free trial of the 3Com Content Filter Service (3CSBCFS). To activate the 14-day free trial of the service, you must first register your Router at www.3com.com. To continue using the service after the trial period, you must purchase the 12-month subscription license.

Figure 52 Content Filter Screen

To configure the Content Filter feature:

1. Select the server that you want to use from the *Content Filter Server* drop-down menu. If the server you want to use is not listed, enter the server address manually.
2. Define the time in the *Server Timeout* field (the default value is 3000ms). If the Content Filter Server does not respond within this time period, the Router will use the default content filter rule. The default rule is either *Allow* or *Deny None of the above (Uncategorized URL)*. You can configure this rule at the bottom of the Content Filter page.
3. If you are not sure about your subscription status, click *CHECK* in *Subscription Filtering Status* to find out if you have a current, valid subscription.

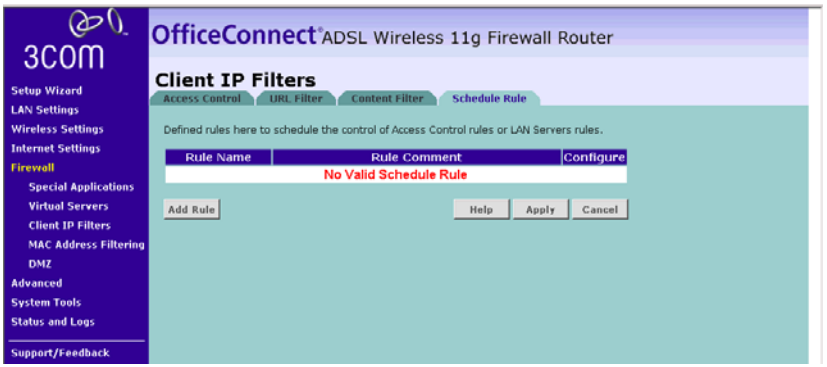
4 A list of categories is listed under *Core Categories* and *Productivity Categories*. You can define what content should be viewed/blocked using the *Allow/Deny* option. The *Deny* option is used to filter out the content that contains the specific subject matter. Content with a specific subject matter will not be filtered out if the *Allow* option is checked.

5 Click *Apply* for the changes to take effect.

Schedule Rule

The Router can be configured to restrict access to the Internet, e-mail or other network services at specific days and times. These schedule rules are used by the rules defined on the *Access Control* section of this screen (see "Access Control" on page 60).

Figure 53 Schedule Rule Screen

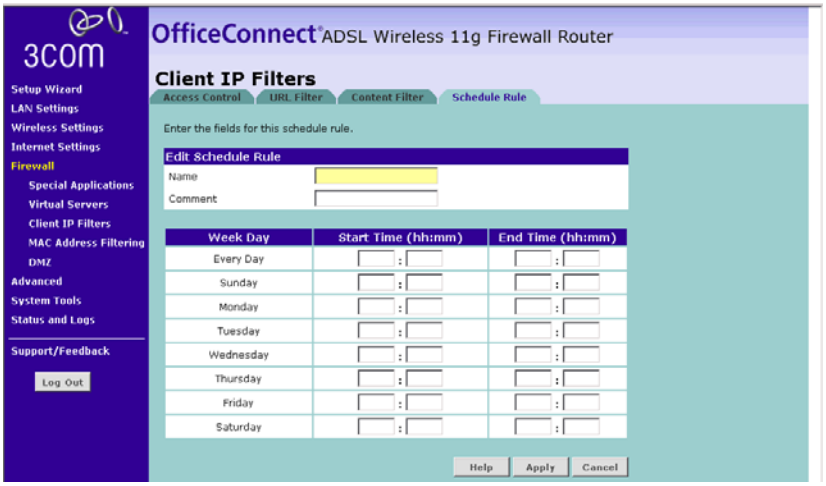


To add a schedule rule:

1 Click *Add Rule*.

A screen similar to Figure 54 will appear.

Figure 54 Add Schedule Rule Screen



2 Enter a name and comment for the schedule rule in the *Name* and *Comment* fields.

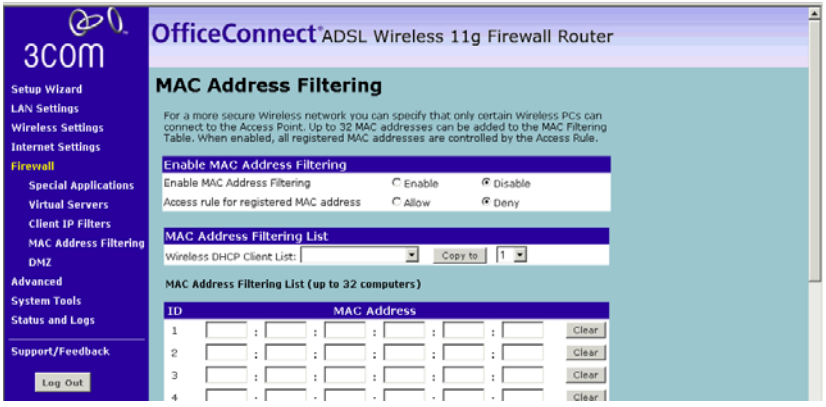
3 Specify the schedule rules for the required days and times - note that all times should be in 24 hour format.

4 Click *Apply*.

MAC Address Filtering

The MAC Address Filter is a powerful security feature that allows you to specify which computers are allowed on the wireless network. Any wireless computers attempting to access the network that are not specified in the filter list will be denied access.

Figure 55 MAC Address Filtering Screen



To enable the MAC Address Filtering feature:

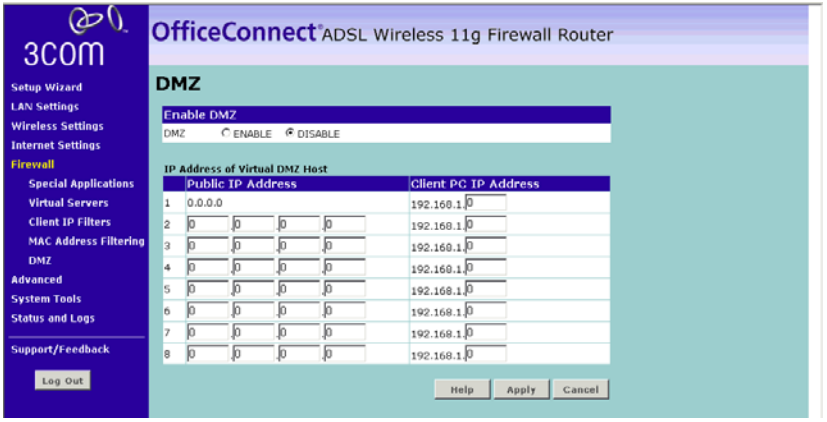
1. Click *Enable* for the *Enable MAC Address Filtering* option.
2. In the *Access Rule for registered MAC address* option, select *Allow* or *Deny* to determine the access rights for the list of addresses defined in the *MAC Address Filtering List*.
3. To add entries to the *MAC Address Filtering List*:
   - Enter the MAC address of each client on your network to allow network access

     or

   - Copy the MAC address by selecting the name of the computer from the *DHCP Clients List*, and then in the *MAC Address Filtering List* click *Copy To*.
4. Click *Apply* to save the settings.

DMZ If you have a client PC that cannot run an Internet application properly from behind the firewall, you can open the client up to unrestricted two-way Internet access. This may be necessary if the NAT feature is causing problems with an application such as a game or video conferencing application.

Figure 56 DMZ Screen



Use this feature on a temporary basis. The computer in the DMZ is not protected from hacker attacks.

To put a computer in the DMZ, enter the last digits of its LAN IP address in the *Static IP* field. Put the IP address (if known) that will be accessing the DMZ PC into the *Public IP* field, so that only the computer on the Internet at this address can access this PC without firewall protection. If the IP address is not known, or if more than one PC on the Internet will need to access this PC, then set the *Public IP* to *0.0.0.0*.

Click *Apply*.

Advanced

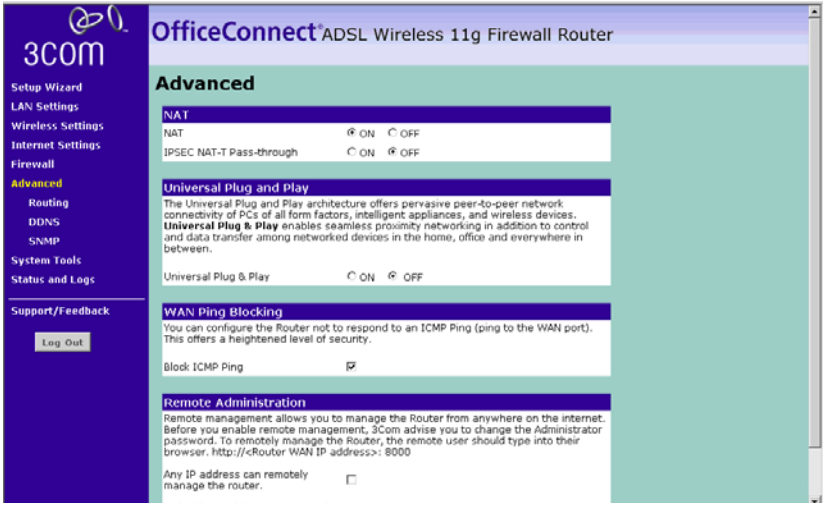
From the Advanced screen, you can configure:

- NAT (Network Address Translation)
- Universal Plug and Play
- WAN Ping Blocking
- Remote Admin

Three sub-menu items can also be configures in this page:

- Routing
- DDNS
- SNMP

Figure 57 Advanced Screen


3COM
OfficeConnect ADSL Wireless 11g Firewall Router
Setup Wizard
LAN Settings
Wireless Settings
Internet Settings
Firewall
Advanced
Routing
DDNS
SNMP
System Tools
Status and Logs
Support/Feedback
Log Out
Advanced
NAT
NAT
ON OFF
IPSEC NAT-T Pass-through
ON OFF
Universal Plug and Play
The Universal Plug and Play architecture offers pervasive peer-to-peer network connectivity of PCs of all form factors, intelligent appliances, and wireless devices. Universal Plug & Play enables seamless proximity networking in addition to control and data transfer among networked devices in the home, office and everywhere in between.
Universal Plug & Play
ON OFF
WAN Ping Blocking
You can configure the Router not to respond to an ICMP Ping (ping to the WAN port). This offers a heightened level of security.
Block ICMP Ping
Remote Administration
Remote management allows you to manage the Router from anywhere on the internet. Before you enable remote management, 3Com advise you to change the Administrator password. To remotely manage the Router, the remote user should type into their browser. http://<Router WAN IP address>: 8000
Any IP address can remotely manage the router.

NAT

- *NAT* — Before you enable NAT (Network Address Translation), make sure you have changed the administrator password. NAT is the method by which the router shares the single IP address assigned by your ISP with the computers on your network.

  This function should only be disabled by advanced users, and if your ISP assigns you multiple IP addresses or you need NAT disabled for an advanced system configuration. If you have a single IP address and

you turn NAT off, the computers on your network will not be able to access the Internet. Other problems may also occur.

- *IPSEC NAT-T Pass-through* — NAT-T (NAT Traversal) is an Internet Draft proposed to IETF in order to help the problems associated with passing IPsec traffic through NAT Routers. For NAT-T to work, both ends of the connection need to support this function.

  Ensure that you select *NAT-T* only if it is needed as it will reduce LAN-WAN throughput. The ADSL Wireless 11g Firewall Router supports NAT-T draft 2 implementation.

Universal Plug and Play

Universal Plug and Play is a technology that offers seamless operation of voice messaging, video messaging, games, and other applications that are Universal Plug and Play compliant. Some applications require the Router's firewall to be configured in a specific way to operate properly. This usually requires opening TCP and UDP ports and in some instances setting trigger ports. An application that is Universal Plug and Play compliant has the ability to communicate with the Router, basically "telling" the Router which way it needs the firewall configured. The Router ships with the Universal Plug and Play feature disabled. If you are using any applications that are Universal Plug and Play compliant, and want to take advantage of the Universal Plug and Play features, you can enable this feature. Simply select *On* in the *Universal Plug and Play* section of the Utilities page. Click *Apply* to save the change.

WAN Ping Blocking

Computer hackers use what is known as "Pinging" to find potential victims on the Internet. By pinging a specific IP address and receiving a response from the IP address, a hacker can determine that something of interest might be there.

The Router can be set up so it will not respond to an ICMP Ping from the outside. This heightens the level of security of your Router.

To turn off the ping response, select *Block ICMP Ping* and click *Apply;* the router will not respond to an ICMP ping from the Internet.

Remote Administration

Before you enable this function, ensure that you have set the Administration Password.

Remote Administration allows you to make changes to your Router's settings from anywhere on the Internet. You can choose to either:

- Click the check box to enable any PC on the network to remotely manage your Router.
- Enter one specific IP address that can remotely manage your router. This is more secure, as only the specified IP address will be able to manage the Router.

Routing

Three tabs are presented in the Routing screen:

- Routing
- RIP (Routing Information Protocol) — RIP allows the network administrator to set up routing information on one RIP-enabled device and send that information to all RIP-enabled devices on the network
- Routing table

Routing

Figure 58 Routing Parameter Screen

The Routing parameter screen shows a list of current static route entries. For each entry, the following information is displayed:

- *Index* — the index of the entry.
- *Network Address* — the network address of the route.
- *Subnet Mask* — the subnet mask of the route.

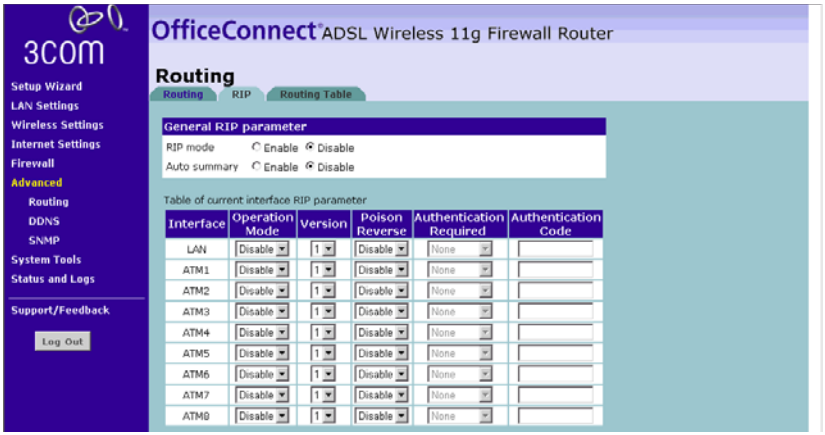
A network address of 0.0.0.0 and a subnet mask of 0.0.0.0 indicates the default route.

- *Gateway* — the router used to route data to the network specified by the network address.

To add a static route entry to the table, click *Add* and on the screen that appears type in the network address, subnet mask and router. To change an entry, click *Edit* and to delete an entry, click *Delete*. After you have finished making changes to the table, click *Apply*.

RIP Parameters

Figure 59 RIP Parameter Screen



You can set up RIP independently on both LAN and WAN interfaces.

1. Select the RIP Mode *Enable* option.
2. Select the appropriate option to enable or disable *Auto Summary*. Auto Summarization sends simplified routing data to other RIP-enabled devices rather than full routing data.
3. Select the *Operation Mode*:
   - *Disabled* — RIP is not enabled for the WAN or LAN interface.
   - *Enabled* — RIP is enabled for the WAN or LAN interface. The router will transmit RIP update information to other RIP-enabled devices.
   - *Silent* — RIP is enabled, however the router only receives RIP update messages, it will not transmit any messages itself.
4. In the *Version* field, select *RIPv1* or *RIPv2*.

3Com recommends that you only use RIPv1 if there is an existing RIP-enabled device on your network that does not support RIPv2. In all other cases, you should use RIPv2.

5 Use the *Poison Reverse* drop-down list to enable or disable *Poison Reverse* on the router. Enabling *Poison Reverse* on your Router allows it to indicate to other RIP-enabled devices that they have both routes that point to each other, preventing data loops.

6 Use the *Authentication Required* field to choose one of three modes of authentication:

- *None* — Switches off authentication on the specified interface.
- *Password* — An unencrypted text password that needs to be set on all RIP-enabled devices connected to this router. RIP information is not shared between devices whose passwords do not match.

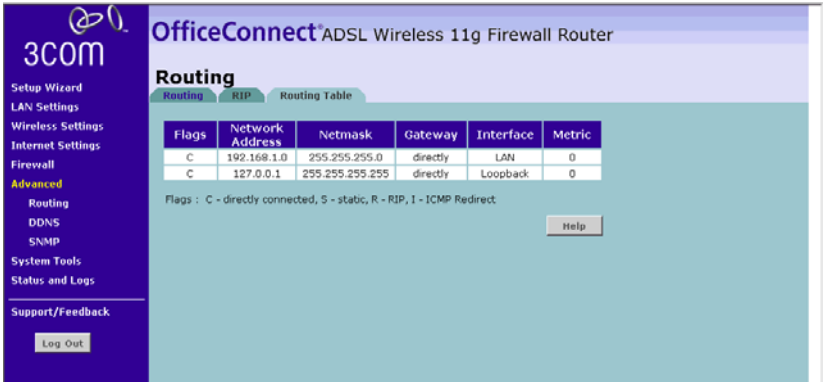
7 In the *Authentication Code* field, enter the password that is required if the *Password* option has been selected.

8 Click *Apply*.

Routing Table

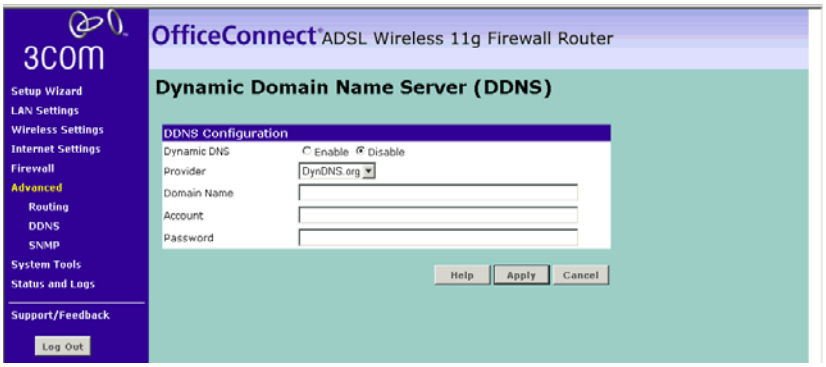
The Routing Table screen displays details for the default routing used by your Router and any routing created using Static Routing or RIP.

Figure 60 Routing Table Screen



DDNS The Router provides a list of dynamic DNS providers for you to choose from. Dynamic Domain Name Server (DDNS) enables you to map a static domain name to a dynamic IP address. The Router supports two DDNS providers: TZO.com and DYNDNS. Before you set up DDNS, you must obtain an account, password and static domain name from your DDNS provider. DDNS is disabled by default.

Figure 61 Dynamic Domain Server (DDNS) Screen



To set up Dynamic DNS:

1. Select the *Dynamic DNS Enable* option.
2. Select a DDNS Service *Provider* from the drop-down list.

TZO.com

If you select TZO.com:

1. In the *Domain Name* text box, enter the domain name.
2. In the *E-mail* text box, enter the account name.
3. In the *Key* text box, enter the account password.
4. Click *Apply* to make this service active.

DynDNS

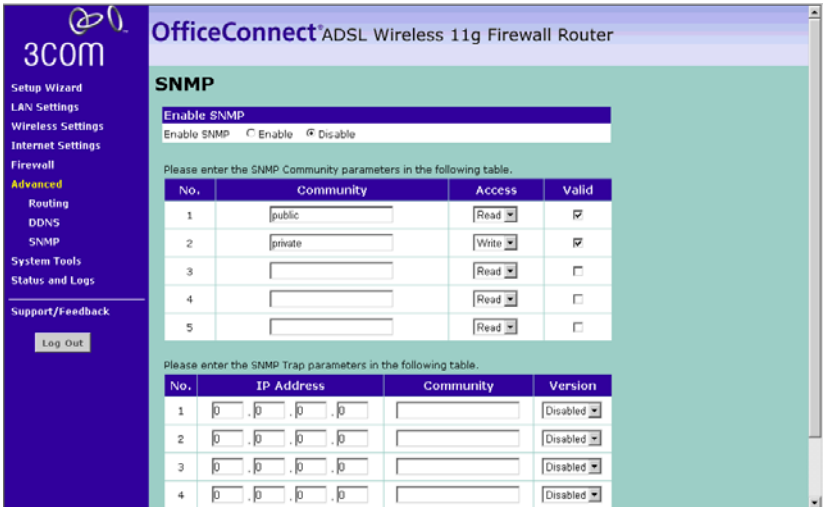
If you select DynDNS.org:

1. In the *Domain Name* text box, enter the domain name.
2. In the *Account* text box, enter the account name.
3. In the *Password* text box, enter the account password.
4. Click *Apply* to make this service active.

SNMP SNMP (Simple Network Management Protocol) allows remote management of your router by a PC that has an SNMP management agent installed.

SNMP Community

Figure 62 SNMP Screen



To Configure SNMP:

1. In the *Community* column, enter the name of the SNMP communication channel. Your SNMP management agent needs to be configured with this name so that it can communicate with your router.
2. In the *Access* column, select *Read* to allow the management agent to collect data (for example, bandwidth usage) from your router. Select *Write* to allow the management agent to change the configuration of your router.
3. Check the appropriate *Valid* check box to enable the communication channel.

SNMP Trap

You can configure your router to send status messages to the SNMP management agent if a problem occurs on the network. To configure traps:

1. In the *IP Address* field, enter the IP address of the PC to which you want your router to send status messages.
2. In the *Community* field, enter the name of the SNMP communication channel to which you want your router to send status messages.
3. Set the *Version* field to match the version of trap messaging that your SNMP management agent supports. The router supports V1 and V2c trap messaging.

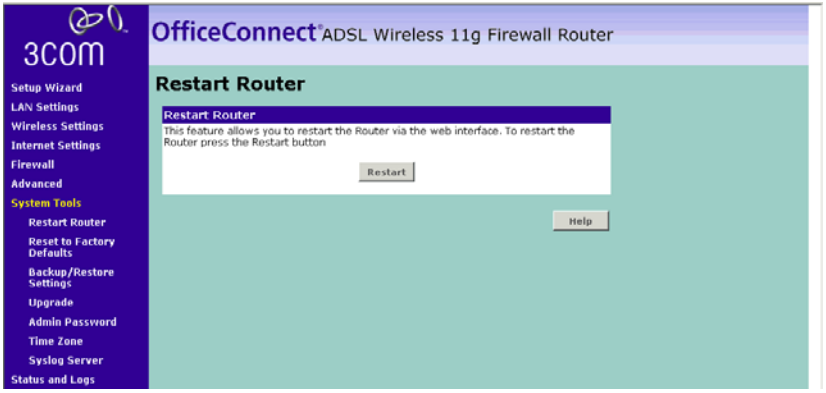
System Tools

These pages lets you manage different parameters of the router and perform certain administrative functions.

Restart Router

Sometimes it may be necessary to restart (or reboot) the Router. Restarting the Router will not delete any of your configuration settings.

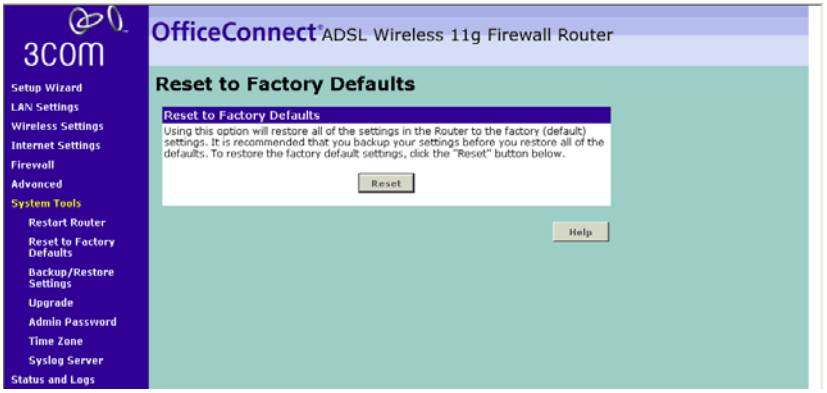
Figure 63 Restart Router Screen



Click *Restart* to restart the Router.

Reset to Factory Default

Figure 64 Reset to Factory Default Screen


3COM
OfficeConnect ADSL Wireless 11g Firewall Router
Setup Wizard
LAN Settings
Wireless Settings
Internet Settings
Firewall
Advanced
System Tools
Restart Router
Reset to Factory Defaults
Backup/Restore Settings
Upgrade
Admin Password
Time Zone
Syslog Server
Status and Logs
Reset to Factory Defaults
Reset to Factory Defaults
Using this option will restore all of the settings in the Router to the factory (default) settings. It is recommended that you backup your settings before you restore all of the defaults. To restore the factory default settings, click the "Reset" button below.
Reset
Help

Using this option will reset all of the settings in the Router to the factory (default) settings. It is recommended that you backup your settings before you restore all of the defaults. To restore the factory default settings, click *Reset*.

Backup/Restore Settings

Figure 65 Backup/Restore Settings Screen

3COM
OfficeConnect ADSL Wireless 11g Firewall Router
Setup Wizard
LAN Settings
Wireless Settings
Internet Settings
Firewall
Advanced
System Tools
Restart Router
Reset to Factory Defaults
Backup/Restore Settings
Upgrade
Admin Password
Time Zone
Syslog Server
Status and Logs
Backup / Restore Settings
Backup Settings
You can save your current configuration by using this feature. Saving your configuration will allow you to restore it later if your settings are lost or changed. It is recommended that you backup your current configuration before performing a firmware update.
Save
Restore Settings
This option will allow you to restore a previously saved configuration. Please select the configuration file and press the "Restore" button below.
Browse...
Restore
Help

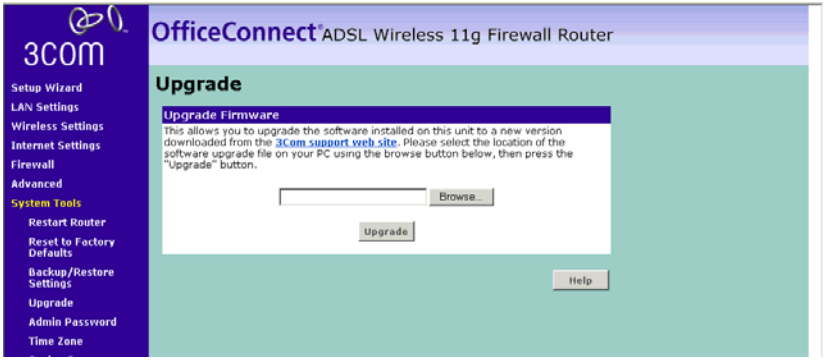
You can save your current configuration by clicking *Save* in *Backup Settings*. Saving your configuration will allow you to restore it later if your settings are lost or changed. It is recommended that you backup your current configuration before performing a firmware update.

The *Restore Settings* option will allow you to restore a previously saved configuration. Please select the configuration file using the *Browse* button and click *Restore*.

Upgrade

From time to time 3Com may release new versions of the Router's firmware. Firmware updates contain improvements and fixes to problems that may have existed.

Figure 66 Upgrade Screen



Please download the firmware file to your PC first, and then click *Browse* and select the firmware file. Click *Upgrade* to upload the firmware to the Router.

Admin Password

The Router ships with a default password of *admin*. 3Com recommends that you change the password for added security. Keep your password in a safe place as you will need this password to log into the router in the future. It is also recommended that you set a password if you plan to use the Remote management feature of this Router.

Figure 67 Admin Password Screen

To change the password:

1 Enter the current password into the *Current Password* field.

2 Enter the new password into the *New Password* and *Confirm new Password* fields.

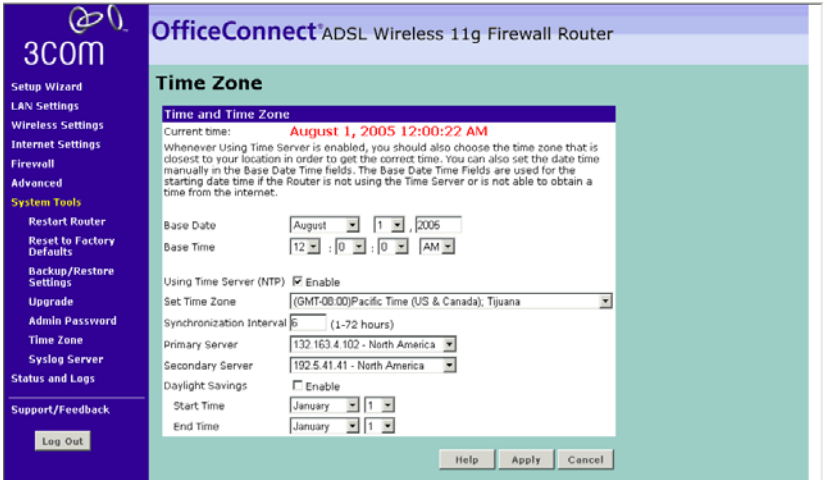
3 Click *Apply*.

The login timeout option allows you to set the period of time that you can be logged into the Router's setup interface. The timer starts when there is no activity. For example, you have made some changes in the setup interface, then left your computer alone without clicking "Logout". Assuming the timeout is set to 5 minutes, then 5 minutes after you leave, the login session will expire. You will have to login to the router again to make any more changes. The login timeout option is for security purposes and the default is set to 5 minutes. As a note, only one computer can be logged into the Router's web management interface at one time.

Time and Time Zone

You can set the time settings for the Router in this page.

Figure 68 Time and Time Zone Screen


3COM
OfficeConnect ADSL Wireless 11g Firewall Router
Setup Wizard
LAN Settings
Wireless Settings
Internet Settings
Firewall
Advanced
System Tools
Restart Router
Reset to Factory Defaults
Backup/Restore Settings
Upgrade
Admin Password
Time Zone
Syslog Server
Status and Logs
Support/Feedback
Log Out
Time Zone
Time and Time Zone
Current time: August 1, 2005 12:00:22 AM
Whenever Using Time Server is enabled, you should also choose the time zone that is closest to your location in order to get the correct time. You can also set the date time manually in the Base Date Time fields. The Base Date Time Fields are used for the starting date time if the Router is not using the Time Server or is not able to obtain a time from the internet.
Base Date
Base Time
Using Time Server (NTP) Enable
Set Time Zone
(GMT-08:00)Pacific Time (US & Canada); Tijuana
Synchronization Interval
(1-72 hours)
Primary Server
132.163.4.102 - North America
Secondary Server
192.5.41.41 - North America
Daylight Savings
Enable
Start Time
End Time
Help
Apply
Cancel

The Router keeps time by connecting to a Simple Network Time Protocol (SNTP) server. This allows the Router to synchronize the system clock to the Internet. The synchronized clock in the Router is used to record the security log and control client filtering. Select the time zone that you reside in. If you reside in an area that observes Daylight Saving, then place

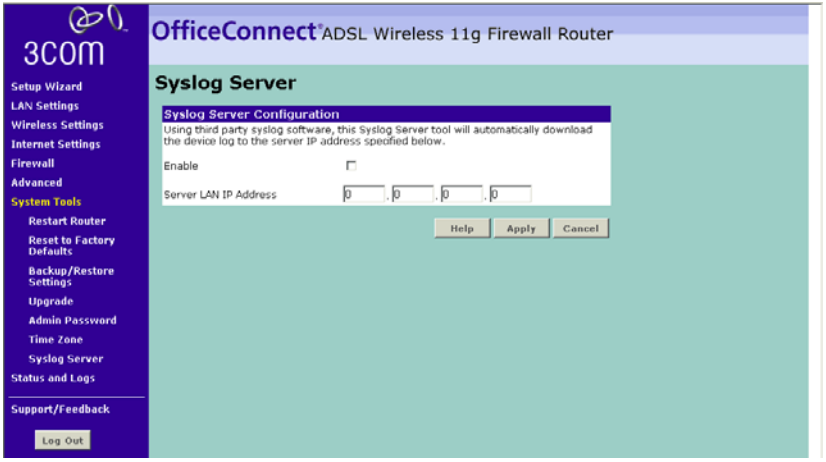
a checkmark in the box next to E*nable Daylight Saving*. The system clock may not update immediately. Allow at least 15 minutes for the router to contact the time servers on the Internet and get a response. You cannot set the clock yourself.

You can specify which SNTP servers the Router will use to update it's system clock, although doing this should only be necessary if you are experiencing difficulty.

Syslog Server

Using third party syslog software, this Syslog Server tool will automatically download the Router log to the specified server IP address.

Figure 69 Syslog Server Screen



1 Check *Enable* to use this function.

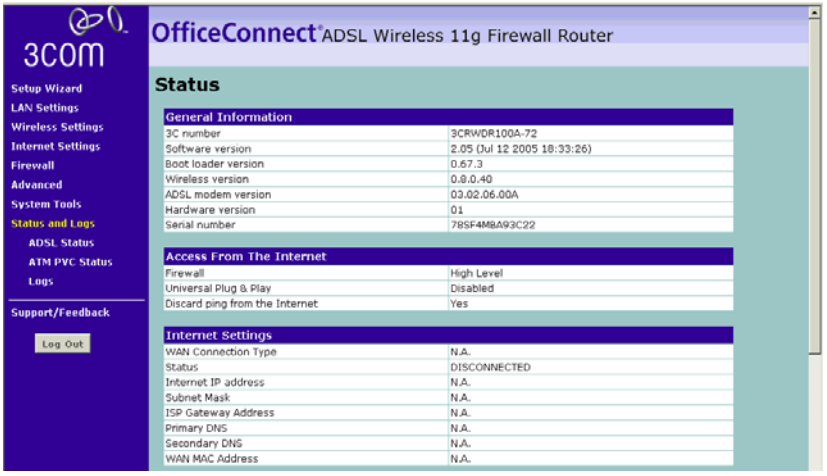
2 Enter the server IP address in the *Server LAN IP Address* field.

Status and Logs

You can use the Status Screen to view version numbers for your router's software and hardware and check the status of connections to WAN, LAN and WLAN interfaces.

Status

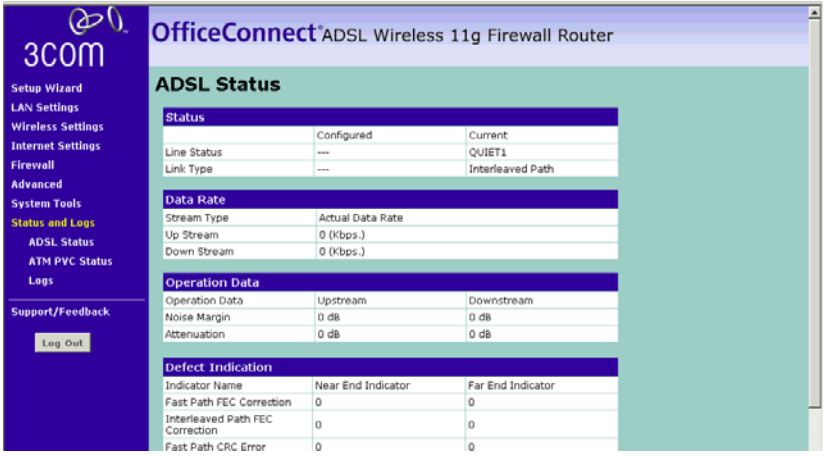
Figure 70 Status Screen



This screen shows Router status and statistics.

ADSL Status

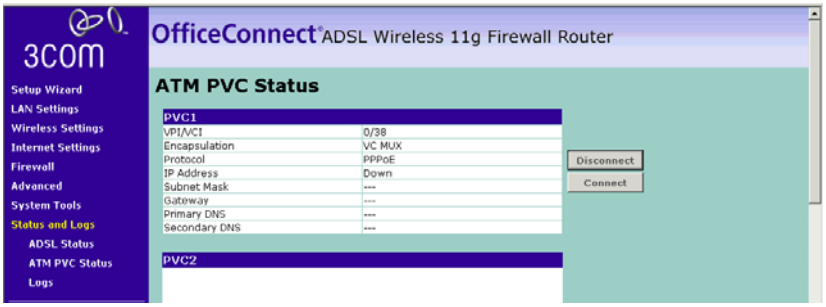
Figure 71 ADSL Status Screen



This screen shows ADSL modem status and statistics.

ATM PVC Status

Figure 72 ATM PVC Status Screen

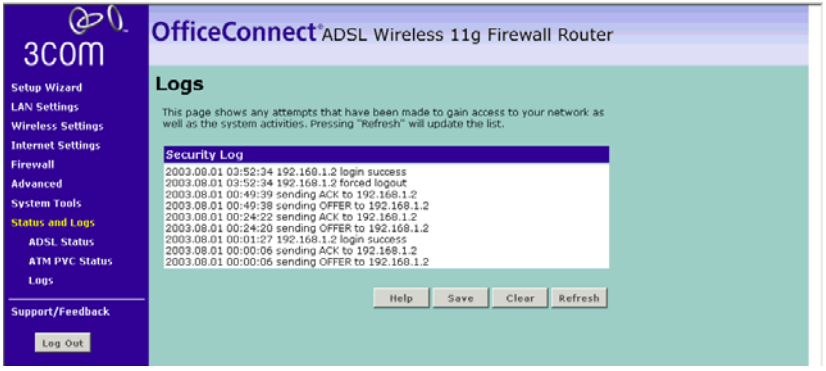


This screen shows ATM PVC status and statistics.

- Click *Disconnect* to disconnect from your ISP.
- Click *Connect* to connect to your ISP.

Logs

Figure 73 Logs Screen



This screen shows any attempts that have been made to gain access to your network as well as the system activities.

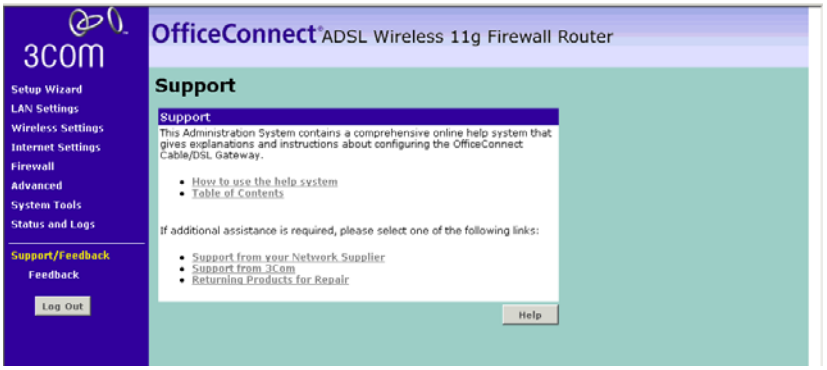
- Click *Refresh* to update the display.
- Click *Clear* to clear the log (note that all current entries will be erased).
- Click *Save* to save the log to disk in a text file. When prompted for a location to save the file to, specify a filename and location, and then click *OK*.

Support/Feedback

You can use the Support/Feedback screen to obtain support and help.

Support

Figure 74 Support Screen

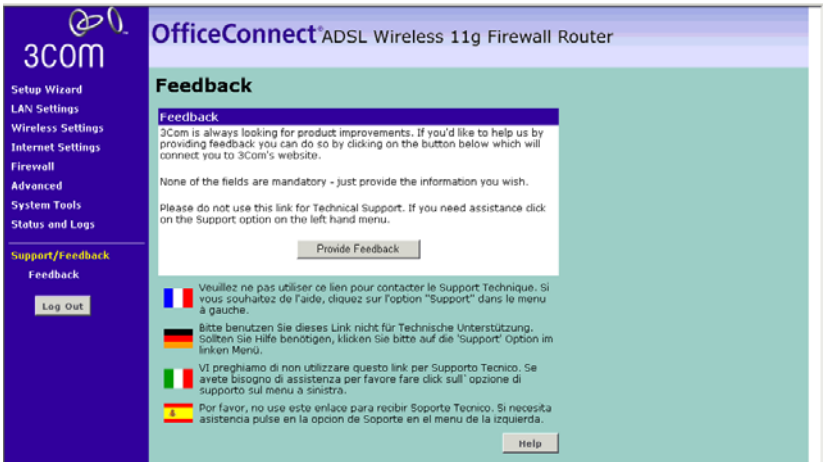


This screen shows support information.

Feedback

To provide feedback to 3Com, please click *Provide Feedback*, and this will connect you to 3Com Web site.

Figure 75 Feedback Screen


3COM
OfficeConnect ADSL Wireless 11g Firewall Router
Setup Wizard
LAN Settings
Wireless Settings
Internet Settings
Firewall
Advanced
System Tools
Status and Logs
Support/Feedback
Feedback
Log Out
Feedback
Feedback
3Com is always looking for product improvements. If you'd like to help us by providing feedback you can do so by clicking on the button below which will connect you to 3Com's website.
None of the fields are mandatory - just provide the information you wish.
Please do not use this link for Technical Support. If you need assistance click on the Support option on the left hand menu.
Provide Feedback
Veuillez ne pas utiliser ce lien pour contacter le Support Technique. Si vous souhaitez de l'aide, cliquez sur l'option "Support" dans le menu à gauche.
Bitte benutzen Sie dieses Link nicht für Technische Unterstützung. Sollten Sie Hilfe benötigen, klicken Sie bitte auf die 'Support' Option im linken Menü.
Vi preghiamo di non utilizzare questo link per Supporto Tecnico. Se avete bisogno di assistenza per favore fare click sull' opzione di supporto sul menu a sinistra.
Por favor, no use este enlace para recibir Soporte Tecnico. Si necesita asistencia pulse en la opcion de Soporte en el menu de la izquierda.
Help

This screen shows feedback information.

6 TROUBLESHOOTING

Basic Connection Checks

- Check that the Router is connected to your computers and to the telephone line, and that all the equipment is powered on. Check that the LAN Status and SYNC LEDs on the Router are illuminated, and that any corresponding LEDs on the NIC are also illuminated.
- Ensure that the computers have completed their start-up procedure and are ready for use. Some network interfaces may not be correctly initialized until the start-up procedure has completed.
- If the link status LED does not illuminate for a port that is connected, check that you do not have a faulty cable. Try a different cable.

Browsing to the Router Configuration Screens

If you have connected your Router and computers together but cannot browse to the Router configuration screens, check the following:

- Confirm that the physical connection between your computer and the Router is OK, and that the LAN Status LEDs on the Router and network adapter are illuminated and indicating the same speed (10Mbps or 100Mbps). Some NICs do not have status LEDs, in which case a diagnostic program may be available that can give you this information.
- Ensure that you have configured your computer as described in Chapter 3. Restart your computer while it is connected to the Router to ensure that your computer receives an IP address.
- When entering the address of the Router into your web browser, ensure that you use the full URL including the http:// prefix (e.g. **`http://192.168.1.1`**).
- Ensure that you do not have a Web proxy enabled on your computer. Go to the *Control Panel* and click on *Internet Options*. Select the *Connections* tab and click on the *LAN Settings* button at the bottom. Make sure that the *Proxy Server* option is unchecked.

- If you cannot browse to the Router, use the *winipcfg* utility in Windows 95/98/ME to verify that your computer has received the correct address information from the Router. From the *Start* menu, choose *Run* and then enter **`winipcfg`**. Check that the computer has an IP address of the form 192.168.1.xxx (where xxx is in the range 2-254), the subnet mask is 255.255.255.0, and the default Router is 192.168.1.1 (the address of the Router). If these are not correct, use the *Release* and *Renew* functions to obtain a new IP address from the Router. Under Windows 2000 and Windows XP, use the *ipconfig* command-line utility to perform the same functions.

Connecting to the Internet

If you can browse to the Router configuration screens but cannot access sites on the Internet, check the following:

- Confirm that the physical connection between the Router and the telephone line is OK, and that the DSL LED on the Router is illuminated.
- Ensure that you have entered the correct information into the Router configuration screens as required by your Internet Service Provider. Use the Internet Settings screen to verify this.
- Check that the PPPoE or PPPoA user name and password are correct.
- Ensure that your computers are not configured to use a Web proxy. On Windows computers, this can be found under *Control Panel* > *Internet Options* > *Connections*.

Forgotten Password and Reset to Factory Defaults

If you can browse to the Router configuration screen but cannot log on because you do not know or have forgotten the password, follow the steps below to reset the Router to its factory default configuration.

CAUTION: *All your configuration changes will be lost, and you will need to run the configuration wizard again before you can re-establish your Router connection to the Internet. Also, other computer users will lose their network connections whilst this process is taking place, so choose a time when this would be convenient.*

1. Power off the Router.
2. Disconnect all your computers and the telephone line from the Router.
3. Re-apply power to the Router, and wait for it to finish booting up.

4. Press and hold the *Reset* button on the rear panel (see "Rear Panel" on page 13) for 5 seconds.
5. The Router will restart, and when the start-up sequence has completed, browse to:

   `http://192.168.1.1`

   and run the configuration wizard. You may need to restart your computer before you attempt this.
6. When the configuration wizard has completed, you may reconnect your network as it was before.

Wireless Networking

- Ensure that you have an 802.11b or 802.11g wireless adapter for each wireless computer, and that it is correctly installed and configured. Verify that each Wireless computer has either Windows 95 or higher or MAC OS 8.5 or higher.
- Verify that your wireless computers are configured to work in Infrastructure mode and not Ad Hoc mode. The Router contains an Access Point that is designed to operate in Infrastructure mode. Ad Hoc mode is not supported by the Router.
- If you have a wired and a wireless NIC in the same computer, ensure that the wired NIC is disabled.
- Check the status of the WLAN LED, it should be lit if wireless is enabled and will flash when there is wireless activity. If not lit go to "Wireless Settings" on page 39 and enable wireless networking.
- Ensure that the TCP/IP settings for all devices are correct.
- Ensure that the Wireless Clients are using the same SSID or Service Area Name as the Router. The SSID is case-sensitive
- Ensure that the encryption method and level that you use on your clients are the same as those configured on the Router. The Router cannot simultaneously support WPA and WEP encryption.
- Ensure that you have the Wireless computer enabled in the list of allowed MAC addresses if you are using MAC Address Filtering on the Router.
- If you are having difficulty connecting or are operating at a low speed try changing the antenna positions on the rear of the Router. For more effective coverage you can try reorientating your antennae. Place one antenna vertically and one horizontally to improve coverage.

Additionally consider moving the wireless computer closer to the Router to confirm that the building structure or fittings are not adversely affecting the connectivity. If this resolves the problem consider relocating the Wireless computer or the Router, or trying a different channel on the Router.

- Sources of interference: The 2.4Ghz ISM band is used for 802.11b and 802.11g. This is generally a licence free band for low power applications, and you may have other devices at your location that operate in this frequency band. You should take care to ensure that there are no devices like microwave ovens for example close to the Router or wireless computers as this could affect receiver sensitivity and reduce the performance of your network. If you are unsure try relocating both the wireless computers and the Router to establish whether this problem exists.
- Most wireless computer Adapters will scan the channels for the wireless Router. If a wireless computer has not located the Router then try initiating a search manually if the client software supports this feature or manually set the channel on your wireless computer to correspond to the Router channel number. Please refer to your Wireless computer adapter documentation and vendor to do this.
- Speed of connection: The 802.11b and 802.11g standards will automatically choose the best speed depending on the quality of your connection. As the signal quality weakens then the speed falls back to a lower speed. The speeds supported by 802.11g are 54 Mbps, 48 Mbps, 36 Mbps, 24 Mbps, 18 Mbps, 12 Mbps, and 6 Mbps. The speeds supported by 802.11b are 11 Mbps, 5.5 Mbps, 2 Mbps and 1 Mbps. In general the closer you are to the Router the better the speed. If you are not achieving the speed you had anticipated then try moving the antenna on the Router or moving the Wireless computer closer to the Router. In an ideal network the Router should be located in the centre of the network with Wireless computers distributed around it. Applications are generally available with the computer wireless card to carry out a site survey. Use this application to find the optimal siting for your wireless computer. Consult your Computer Card documentation and vendor for more details.

Recovering from Corrupted Software

If the system software has become corrupted, the Router will enter a "recovery" state; DHCP is enabled, and the LAN IP address is set to 192.168.1.1. Follow the instructions below to upload a new copy of the system software to a Router unit in this state.

Ensure that one of your computers has a copy of the new software image file stored on its hard disk or available on CD-ROM.

The latest software is available on 3Com's Web site at:

`www.3com.com`

1. Remove power from the Router and disconnect the telephone line and all your computers, except for the one computer with the software image.
2. You will need to reconfigure this computer to obtain an IP address automatically (see "Obtaining an IP Address Automatically" on page 21)
3. Restart the computer, and re-apply power to the Router.
4. Using the Web browser on the computer, enter the following URL in the location bar:

   `http://192.168.1.1`.

   This will connect you to the Recovery utility in the Router.
5. Follow the on-screen instructions. Enter the path and filename of the software image file.
6. When the upload has completed, the Router will restart, run the self-test and, if successful, resume normal operation.
7. Refer to the Installation Guide to reconnect your Router to the telephone line and the computers in your network. Do not forget to reconfigure the computer you used for the software upload.

   If the Router does not resume normal operation following the upload, it may be faulty. Contact your supplier for advice.

Frequently Asked Questions

How do I reset the Router to Factory Defaults?

See "Forgotten Password and Reset to Factory Defaults" on page 84.

How many computers on the LAN does the Router support?

A maximum of 253 computers on the LAN are supported.

How many wireless clients does the Router support?

A maximum of 128 wireless clients are supported.

There are only 4 LAN ports on the Router. How are additional computers connected?

You can expand the number of connections available on your LAN by using hubs, switches and wireless access points connected to the Router. 3Com wireless access points and hubs and switches provide a simple, reliable means of expanding your network; contact your supplier for more information, or visit:

http://www.3com.com/

Does the Router support virtual private networks (VPNs)?

The Router supports VPN passthrough, which allows VPN clients on the LAN to communicate with VPN hosts on the Internet. It is also possible to set up VPN hosts on your LAN that clients elsewhere on the Internet can connect to, but this is not a recommended configuration.

Where can I download software updates for the Router?

Updates to the Router software are posted on the 3Com support web site, accessible by visiting:

http://www.3com.com

A IP Addressing

The Internet Protocol Suite

The Internet protocol suite consists of a well-defined set of communications protocols and several standard application protocols. Transmission Control Protocol/Internet Protocol (TCP/IP) is probably the most widely known and is a combination of two of the protocols (IP and TCP) working together. TCP/IP is an internationally adopted and supported networking standard that provides connectivity between equipment from many vendors over a wide variety of networking technologies.

Managing the Router over the Network

To manage a device over the network, the Router must be correctly configured with the following IP information:

- An IP address
- A Subnet Mask

IP Addresses and Subnet Masks

Each device on your network must have a unique IP address to operate correctly. An IP address identifies the address of the device to which data is being sent and the address of the destination network. IP addresses have the format n.n.n.x where n is a decimal number between 0 and 255 and x is a number between 1 and 254 inclusive.

However, an IP Address alone is not enough to make your device operate. In addition to the IP address, you need to set a subnet mask. All networks are divided into smaller sub-networks and a subnet mask is a number that enables a device to identify the sub-network to which it is connected.

For your network to work correctly, all devices on the network must have:

- The same sub-network address.
- The same subnet mask.

The only value that will be different is the specific host device number. This value must always be unique.

An example IP address is '192.168.100.8'. However, the size of the network determines the structure of this IP Address. In using the Router, you will probably only encounter two types of IP Address and subnet mask structures.

Type One

In a small network, the IP address of '192.168.100.8' is split into two parts:

- Part one ('192.168.100') identifies the network on which the device resides.
- Part two ('.8') identifies the device within the network.

This type of IP Address operates on a subnet mask of '255.255.255.0'.

See Table 3 for an example about how a network with three computers and a Router might be configured.

Table 3 IP Addressing and Subnet Masking

Device	IP Address	Subnet Mask
PC 1	192.168.100.8	255.255.255.0
PC 2	192.168.100.33	255.255.255.0
PC 3	192.168.100.188	255.255.255.0
Router	192.168.100.72	255.255.255.0

Type Two

In larger networks, where there are more devices, the IP address of '192.168.100.8' is, again, split into two parts but is structured differently:

- Part one ('192.168') identifies the network on which the device resides.
- Part two ('.100.8') identifies the device within the network.

This type of IP Address operates on a subnet mask of '255.255.0.0'.

See Table 4 for an example about how a network (only four computers represented) and a Router might be configured.

Table 4 IP Addressing and Subnet Masking

Device	IP Address	Subnet Mask
PC 1	192.168.100.8	255.255.0.0
PC 2	192.168.201.30	255.255.0.0
PC 3	192.168.113.155	255.255.0.0
PC 4	192.168.002.230	255.255.0.0
Router	192.168.002.72	255.255.0.0

How does a Device Obtain an IP Address and Subnet Mask?

There are three different ways to obtain an IP address and the subnet mask. These are:

- Dynamic Host Configuration Protocol (DHCP) Addressing
- Static Addressing
- Automatic Addressing (Auto-IP Addressing)

DHCP Addressing

The Router contains a DHCP server, which allows computers on your network to obtain an IP address and subnet mask automatically. DHCP assigns a temporary IP address and subnet mask which gets reallocated once you disconnect from the network.

DHCP will work on any client Operating System such as Windows® 95, Windows 98 or Windows NT 4.0. Also, using DHCP means that the same IP address and subnet mask will never be duplicated for devices on the network. DHCP is particularly useful for networks with large numbers of users on them.

Static Addressing

You must enter an IP Address and the subnet mask manually on every device. Using a static IP and subnet mask means the address is permanently fixed.

Auto-IP Addressing

Network devices use automatic IP addressing if they are configured to acquire an address using DHCP but are unable to contact a DHCP server. Automatic IP addressing is a scheme where devices allocate themselves

an IP address at random from the industry standard subnet of 169.254.x.x (with a subnet mask of 255.255.0.0). If two devices allocate themselves the same address, the conflict is detected and one of the devices allocates itself a new address.

Automatic IP addressing support was introduced by Microsoft in the Windows 98 operating system and is also supported in Windows 2000.

B TECHNICAL SPECIFICATIONS

This section lists the technical specifications for the OfficeConnect ADSL Wireless 11g Firewall Router.

OfficeConnect ADSL Wireless 11g Firewall Router

Interfaces

DSL connection

LAN connection — four 10Mbps/100Mbps dual speed Ethernet ports (10BASE-T/100BASE-TX)

WLAN Interfaces

Standard IEEE 802.11g, Direct Sequence Spread Spectrum (DSSS)
Transmission rate: 54Mbps, automatic fallback to 48, 36, 24, 18, 12, or 6 Mbps
Maximum channels: 14
Range up to 304.8m (1000ft)
Frequency: (US/Canada/Europe) 2.400-2.4835 GHz
Sensitivity: 6, 12, 18, 24, 36, 48 Mbps: -85 dBm;
54 Mbps -66 dBm typical
Modulation: CCK, BPSK, QPSK, OFDM
Encryption: 40/64 bit WEP, 128 bit WEP, WPA
Maximum clients: 128
O/P Power: 18dBm

Standard IEEE 802.11b, Direct Sequence Spread Spectrum (DSSS)
Transmission rate: 11bps, automatic fallback to 5.5, 2, or 1 Mbps
Maximum channels: 14
Range up to 304.8m (1000ft)
Frequency: (US/Canada/Europe) 2.400-2.4835 GHz
Sensitivity: 1, 2, 5.5 Mbps: -85 dBm; 11 Mbps -82 dBm typical
Modulation: CCK, BPSK, QPSK
Encryption: 40/64 bit WEP, 128 bit WEP, WPA

Maximum clients: 128
O/P Power 16dBm

Operating Temperature

0 °C to 40 °C (32 °F to 105 °F)

Power

8VA, 25 BThU/hr

Humidity

0% to 90% (non-condensing) humidity

Dimensions

- Width = 220 mm (8.7 in.)
- Depth = 133 mm (5.2 in.)
- Height = 38 mm (1.5 in.)

Weight

Approximately 550 g (1.1 lbs)

Standards

Functional:	ISO 8802/3 IEEE 802.3 IEEE 802.11b, 802.11g
Safety:	EN 60950
EMC:	EN 55022 Class B EN 55024 FCC Part 15 Class B* ETSI EN 301 489–17
Radio	ETS 300 328 (2.4 GHz ISM band wide band transmission systems.
Environmental:	EN 60068 (IEC 68)

*See "Regulatory Notices" for conditions of operation.

System Requirements

Operating Systems

The Router will support the following Operating Systems:

- Windows 95/98
- Windows NT 4.0
- Windows ME
- Windows 2000
- Windows XP
- Mac OS 8.5 or higher
- Unix

Ethernet Performance

The Router complies to the IEEE 802.3i, u and x specifications.

Cable Specifications

The Router supports the following cable types and maximum lengths:

- Category 3 (Ethernet) or Category 5 (Fast Ethernet or Dual Speed Ethernet) Twisted Pair — shielded and unshielded cable types.
- Maximum cable length of 100m (327.86 ft).

C SAFETY INFORMATION

Important Safety Information

***WARNING**: Warnings contain directions that you must follow for your personal safety. Follow all directions carefully.*
You must read the following safety information carefully before you install or remove the unit:

***WARNING**: The Router generates and uses radio frequency (rf) energy. In some environments, the use of rf energy is not permitted. The user should seek local advice on whether or not rf energy is permitted within the area of intended use.*

***WARNING**: Exceptional care must be taken during installation and removal of the unit.*

***WARNING**: To ensure compliance with international safety standards, only use the power adapter that is supplied with the unit.*

***WARNING**: The socket outlet must be near to the unit and easily accessible. You can only remove power from the unit by disconnecting the power cord from the outlet.*

***WARNING**: This unit operates under SELV (Safety Extra Low Voltage) conditions according to IEC 60950. The conditions are only maintained if the equipment to which it is connected also operates under SELV conditions.*

***WARNING**: There are no user-replaceable fuses or user-serviceable parts inside the Router. If you have a physical problem with the unit that cannot be solved with problem solving actions in this guide, contact your supplier.*

***WARNING**: Disconnect the power adapter before moving the unit.*

WARNING: RJ-45 ports. *These are shielded RJ-45 data sockets. They cannot be used as telephone sockets. Only connect RJ-45 data connectors to these sockets.*

Wichtige Sicherheitshinweise

VORSICHT: *Warnhinweise enthalten Anweisungen, die Sie zu Ihrer eigenen Sicherheit befolgen müssen. Alle Anweisungen sind sorgfältig zu befolgen.*
Sie müssen die folgenden Sicherheitsinformationen sorgfältig durchlesen, bevor Sie das Geräts installieren oder ausbauen:

VORSICHT: *Der Router erzeugt und verwendet Funkfrequenz (RF). In manchen Umgebungen ist die Verwendung von Funkfrequenz nicht gestattet. Erkundigen Sie sich bei den zuständigen Stellen, ob die Verwendung von Funkfrequenz in dem Bereich, in dem der Bluetooth Access Point eingesetzt werden soll, erlaubt ist.*

VORSICHT: *Bei der Installation und beim Ausbau des Geräts ist mit höchster Vorsicht vorzugehen.*

VORSICHT: *Aufgrund von internationalen Sicherheitsnormen darf das Gerät nur mit dem mitgelieferten Netzadapter verwendet werden.*

VORSICHT: *Die Netzsteckdose muß in der Nähe des Geräts und leicht zugänglich sein. Die Stromversorgung des Geräts kann nur durch Herausziehen des Gerätenetzkabels aus der Netzsteckdose unterbrochen werden.*

VORSICHT: *Der Betrieb dieses Geräts erfolgt unter den SELV-Bedingungen (Sicherheitskleinstspannung) gemäß IEC 60950. Diese Bedingungen sind nur gegeben, wenn auch die an das Gerät angeschlossenen Geräte unter SELV-Bedingungen betrieben werden.*

VORSICHT: *Es sind keine von dem Benutzer zu ersetzende oder zu wartende Teile in dem Gerät vorhanden. Wenn Sie ein Problem mit dem Router haben, das nicht mittels der Fehleranalyse in dieser Anleitung behoben werden kann, setzen Sie sich mit Ihrem Lieferanten in Verbindung.*

VORSICHT: *Vor dem Ausbau des Geräts das Netzadapterkabel herausziehen.*

VORSICHT: RJ-45-Anschlüsse. *Dies sind abgeschirmte RJ-45-Datenbuchsen. Sie können nicht als Telefonanschlußbuchsen verwendet werden. An diesen Buchsen dürfen nur RJ-45-Datenstecker angeschlossen werden.*

Consignes importantes de sécurité

AVERTISSEMENT: *Les avertissements présentent des consignes que vous devez respecter pour garantir votre sécurité personnelle. Vous devez respecter attentivement toutes les consignes.*
Nous vous demandons de lire attentivement les consignes suivantes de sécurité avant d'installer ou de retirer l'appareil:

AVERTISSEMENT: *La Router fournit et utilise de l'énergie radioélectrique (radio fréquence -rf). L'utilisation de l'énergie radioélectrique est interdite dans certains environnements. L'utilisateur devra se renseigner sur l'autorisation de cette énergie dans la zone prévue.*

AVERTISSEMENT: *Faites très attention lors de l'installation et de la dépose du groupe.*

AVERTISSEMENT: *Pour garantir le respect des normes internationales de sécurité, utilisez uniquement l'adaptateur électrique remis avec cet appareil.*

AVERTISSEMENT: *La prise secteur doit se trouver à proximité de l'appareil et son accès doit être facile. Vous ne pouvez mettre l'appareil hors circuit qu'en débranchant son cordon électrique au niveau de cette prise.*

AVERTISSEMENT: *L'appareil fonctionne à une tension extrêmement basse de sécurité qui est conforme à la norme CEI 60950. Ces*

conditions ne sont maintenues que si l'équipement auquel il est raccordé fonctionne dans les mêmes conditions.

AVERTISSEMENT: *Il n'y a pas de parties remplaceables par les utilisateurs ou entretenues par les utilisateurs à l'intérieur du moyeu. Si vous avez un problème physique avec le moyeu qui ne peut pas être résolu avec les actions de la résolution des problèmes dans ce guide, contacter votre fournisseur.*

AVERTISSEMENT: *Débranchez l'adaptateur électrique avant de retirer cet appareil.*

AVERTISSEMENT: Ports RJ-45. *Il s'agit de prises femelles blindées de données RJ-45. Vous ne pouvez pas les utiliser comme prise de téléphone. Branchez uniquement des connecteurs de données RJ-45 sur ces prises femelles.*

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3Com Corporation, 350 Campus Drive, Marlborough, MA. USA 01752-3064

E Obtaining Support for Your Product

Register Your Product

Warranty and other service benefits start from the date of purchase, so it is important to register your product quickly to ensure you get full use of the warranty and other service benefits available to you.

Warranty and other service benefits are enabled through product registration. Register your product at **http://eSupport.3com.com/**. 3Com eSupport services are based on accounts that you create or have authorization to access. First time users must apply for a user name and password that provides access to a number of eSupport features including Product Registration, Repair Services, and Service Request. If you have trouble registering your product, please contact 3Com Global Services for assistance.

Purchase Value-Added Services

To enhance response times or extend warranty benefits, contact 3Com or your authorized 3Com reseller. Value-added services like 3Com Express℠ and Guardian℠ can include 24x7 telephone technical support, software upgrades, onsite assistance or advance hardware replacement. Experienced engineers are available to manage your installation with minimal disruption to your network. Expert assessment and implementation services are offered to fill resource gaps and ensure the success of your networking projects. More information on 3Com maintenance and Professional Services is available at **www.3com.com**.

Contact your authorized 3Com reseller or 3Com for a complete list of the value-added services available in your area.

Troubleshoot Online

You will find support tools posted on the 3Com Web site at **www.3com.com**.

3Com Knowledgebase helps you troubleshoot 3Com products. This query-based interactive tool is located at **http://knowledgebase.3com.com** and contains thousands of technical solutions written by 3Com support engineers.

Access Software Downloads

Software Updates are the bug fix/maintenance releases for the version of software initially purchased with the product. In order to access these Software Updates you must first register your product on the 3Com Web site at **http://eSupport.3com.com/**

First time users will need to apply for a user name and password. A link to software downloads can be found at **http://eSupport.3com.com/**, or under the Product Support heading at **www.3com.com**.

Software Upgrades are the feature releases that follow the software version included with your original product. In order to access upgrades and related documentation you must first purchase a service contract from 3Com or your reseller.

Telephone Technical Support and Repair

To enable telephone support and other service benefits, you must first register your product at **http://eSupport.3com.com/**

Warranty and other service benefits start from the date of purchase, so it is important to register your product quickly to ensure you get full use of the warranty and other service benefits available to you.

When you contact 3Com for assistance, please have the following information ready:

- Product model name, part number, and serial number
- Proof of purchase, if you have not pre-registered your product
- A list of system hardware and software, including revision level
- Diagnostic error messages
- Details about recent configuration changes, if applicable

To send a product directly to 3Com for repair, you must first obtain a return authorization number (RMA). Products sent to 3Com, without authorization numbers clearly marked on the outside of the package, will be returned to the sender unopened, at the sender's expense. If your product is registered and under warranty, you can obtain an RMA number online at **http://eSupport.3com.com/**. First time users will need to apply for a user name and password.

Contact Us

3Com offers telephone, e-mail and internet access to technical support and repair services. To access these services for your region, use the appropriate telephone number, URL or e-mail address from the list below.

Telephone numbers are correct at the time of publication. Find a current directory of contact information posted on the 3Com Web site at **http://csoweb4.3com.com/contactus/**

Country	Telephone Number	Country	Telephone Number
Asia, Pacific Rim Telephone Technical Support and Repair			
Australia	1 800 678 515	Philippines	1235 61 266 2602 or
Hong Kong	800 933 486		1800 1 888 9469
India	+61 2 9424 5179 or	P.R. of China	800 810 3033
	000800 650 1111	Singapore	800 6161 463
Indonesia	001 803 61009	S. Korea	080 333 3308
Japan	00531 616 439 or	Taiwan	00801 611 261
	03 3507 5984	Thailand	001 800 611 2000
Malaysia	1800 801 777		
New Zealand	0800 446 398		
Pakistan	+61 2 9937 5083		
You can also obtain support in this region using the following e-mail: **apr_technical_support@3com.com**			
Or request a repair authorization number (RMA) by fax using this number:			+ 65 543 6348
Europe, Middle East, and Africa Telephone Technical Support and Repair			
From anywhere in these regions, call:	+44 (0)1442 435529		
From the following countries, you may use the numbers shown:			

Country	Telephone Number	Country	Telephone Number
Austria	0800 297 468	Luxembourg	800 23625
Belgium	0800 71429	Netherlands	0800 0227788
Denmark	800 17309	Norway	800 11376
Finland	0800 113153	Poland	00800 4411 357
France	0800 917959	Portugal	800 831416
Germany	0800 182 1502	South Africa	0800 995 014
Hungary	06800 12813	Spain	900 938 919
Ireland	1 800 553 117	Sweden	020 795 482
Israel	1800 945 3794	Switzerland	0800 553 072
Italy	800 879489	U.K.	0800 096 3266

You can also obtain support in this region using the following URL:
http://emea.3com.com/support/email.html

Latin America Telephone Technical Support and Repair

Antigua Barbuda	AT&T +800 988 2112	Guadalupe	AT&T +800 998 2112
Argentina Local Number	54 11 5556 3200	Guatemala	AT&T +800 998 2112
Argentina	0 810 444 3COM	Guyana	AT&T +800 998 2112
Argentina	810 44 32 66	Haiti	AT&T +800 998 2112
Aruba	AT&T +800 998 2112	Honduras	AT&T +800 998 2112
Bahamas	AT&T +800 998 2112	Jamaica	AT&T +800 998 2112
Barbados	AT&T +800 998 2112	Mexico Local Number	52 55 52 01 00 04
Belize	AT&T +800 998 2112	Mexico	01 800 849CARE
Bermuda	AT&T +800 998 2112	Mexico	01 800 849 2273
Bolivia	AT&T +800 998 2112	Monserrat	AT&T +800 998 2112
Brazil Local Number	55 11 5643 2700	Nicaragua	AT&T +800 998 2112
Brazil	800 133 266	Panama	AT&T +800 998 2112
British Virgin Islands	AT&T +800 998 2112	Paraguay	AT&T +800 998 2112
Cayman Islands	AT&T +800 998 2112	Peru	AT&T +800 998 2112
Chile	AT&T +800 998 2112	Puerto Rico	AT&T +800 998 2112
Columbia Local Number	57 1 592 5000	Saba Anquila	AT&T +800 998 2112
Colombia	800 011 3266	St. Kitts Neives	AT&T +800 998 2112
Costa Rica	AT&T +800 998 2112	St. Lucia	AT&T +800 998 2112
Curacao	AT&T +800 998 2112	St. Vincent	AT&T +800 998 2112
Dominica	AT&T +800 998 2112	Suriname	AT&T +800 998 2112
Dominique	AT&T +800 998 2112	Trinidad and Tobago	AT&T +800 998 2112
Equador	AT&T +800 998 2112	Turks and Caycos	AT&T +800 998 2112
El Salvador	AT&T +800 998 2112	Uruguay - Montevideo	AT&T +800 998 2112
French Guiana	AT&T +800 998 2112	Venezuela	AT&T +800 998 2112
Grenada	AT&T +800 998 2112	Virgin Islands	AT&T +800 998 2112

You can also obtain support in this region using the following:

Spanish speakers, enter the URL:
http://lat.3com.com/lat/support/form.html

Portuguese speakers, enter the URL:
http://lat.3com.com/br/support/form.html

English speakers in Latin America should send e-mail to:
lat_support_anc@3com.com

Country	Telephone Number	Country	Telephone Number
US and Canada Telephone Technical Support and Repair			
	1 800 876 3266		

GLOSSARY

802.11b The IEEE specification for wireless Ethernet which allows speeds of up to 11 Mbps. The standard provides for 1, 2, 5.5 and 11 Mbps data rates. The rates will switch automatically depending on range and environment.

802.11g The IEEE specification for wireless Ethernet which allows speeds of up to 54 Mbps. The standard provides for 6, 12, 24, 36, 48 and 54 Mbps data rates. The rates will switch automatically depending on range and environment.

10BASE-T The IEEE specification for 10 Mbps Ethernet over Category 3, 4 or 5 twisted pair cable.

100BASE-TX The IEEE specification for 100 Mbps Fast Ethernet over Category 5 twisted-pair cable.

Access Point An Access Point is a device through which wireless clients connect to other wireless clients and which acts as a bridge between wireless clients and a wired network, such as Ethernet. Wireless clients can be moved anywhere within the coverage area of the access point and still connect with each other. If connected to an Ethernet network, the access point monitors Ethernet traffic and forwards appropriate Ethernet messages to the wireless network, while also monitoring wireless client radio traffic and forwarding wireless client messages to the Ethernet LAN.

Ad Hoc mode Ad Hoc mode is a configuration supported by most wireless clients. It is used to connect a peer to peer network together without the use of an access point. It offers lower performance than infrastructure mode, which is the mode the router uses. (see also Infrastructure mode.)

Auto-negotiation Some devices in the range support auto-negotiation. Auto-negotiation is where two devices sharing a link, automatically configure to use the best

common speed. The order of preference (best first) is: 100BASE-TX full duplex, 100BASE-TX half duplex, 10BASE-T full duplex, and 10BASE-T half duplex. Auto-negotiation is defined in the IEEE 802.3 standard for Ethernet and is an operation that takes place in a few milliseconds.

Bandwidth The information capacity, measured in bits per second, that a channel can transmit. The bandwidth of Ethernet is 10 Mbps, the bandwidth of Fast Ethernet is 100 Mbps. The bandwidth for 802.11b wireless is 11Mbps.

Category 3 Cables One of five grades of Twisted Pair (TP) cabling defined by the EIA/TIA-586 standard. Category 3 is voice grade cable and can only be used in Ethernet networks (10BASE-T) to transmit data at speeds of up to 10 Mbps.

Category 5 Cables One of five grades of Twisted Pair (TP) cabling defined by the EIA/TIA-586 standard. Category 5 can be used in Ethernet (10BASE-T) and Fast Ethernet networks (100BASE-TX) and can transmit data up to speeds of 100 Mbps. Category 5 cabling is better to use for network cabling than Category 3, because it supports both Ethernet (10 Mbps) and Fast Ethernet (100 Mbps) speeds.

Channel Similar to any radio device, the Wireless Cable/DSL router allows you to choose different radio channels in the wireless spectrum. A channel is a particular frequency within the 2.4GHz spectrum within which the Router operates.

Client The term used to described the desktop PC that is connected to your network.

DHCP Dynamic Host Configuration Protocol. This protocol automatically assigns an IP address for every computer on your network. Windows 95, Windows 98 and Windows NT 4.0 contain software that assigns IP addresses to workstations on a network. These assignments are made by the DHCP server software that runs on Windows NT Server, and Windows 95 and Windows 98 will call the server to obtain the address. Windows 98 will allocate itself an address if no DHCP server can be found.

DNS Server Address DNS stands for Domain Name System, which allows Internet host computers to have a domain name (such as 3com.com) and one or more IP addresses (such as 192.34.45.8). A DNS server keeps a database of

host computers and their respective domain names and IP addresses, so that when a domain name is requested (as in typing "3com.com" into your Internet browser), the user is sent to the proper IP address. The DNS server address used by the computers on your home network is the location of the DNS server your ISP has assigned.

DSL modem DSL stands for digital subscriber line. A DSL modem uses your existing phone lines to send and receive data at high speeds.

Encryption A method for providing a level of security to wireless data transmissions. The Router uses two levels of encryption; 40/64 bit and 128 bit. 128 bit is a more powerful level of encryption than 40/64 bit.

ESSID Extended Service Set Identifier. The ESSID is a unique identifier for your wireless network. You must have the same ESSID entered into the router and each of it's wireless clients.

Ethernet A LAN specification developed jointly by Xerox, Intel and Digital Equipment Corporation. Ethernet networks use CSMA/CD to transmit packets at a rate of 10 Mbps over a variety of cables.

Ethernet Address See MAC address.

Fast Ethernet An Ethernet system that is designed to operate at 100 Mbps.

Firewall Electronic protection that prevents anyone outside of your network from seeing your files or damaging your computers.

Full Duplex A system that allows packets to be transmitted and received at the same time and, in effect, doubles the potential throughput of a link.

Half Duplex A system that allows packets to transmitted and received, but not at the same time. Contrast with full duplex.

Hub A device that regenerates LAN traffic so that the transmission distance of that signal can be extended. Hubs are similar to repeaters, in that they connect LANs of the same type; however they connect more LANs than a repeater and are generally more sophisticated.

IEEE Institute of Electrical and Electronics Engineers. This American organization was founded in 1963 and sets standards for computers and communications.

IETF Internet Engineering Task Force. An organization responsible for providing engineering solutions for TCP/IP networks. In the network management area, this group is responsible for the development of the SNMP protocol.

Infrastructure mode Infrastructure mode is the wireless configuration supported by the Router. You will need to ensure all of your clients are set up to use infrastructure mode in order for them to communicate with the Access Point built into your Router. (see also Ad Hoc mode)

IP Internet Protocol. IP is a layer 3 network protocol that is the standard for sending data through a network. IP is part of the TCP/IP set of protocols that describe the routing of packets to addressed devices. An IP address consists of 32 bits divided into two or three fields: a network number and a host number or a network number, a subnet number, and a host number.

IP Address Internet Protocol Address. A unique identifier for a device attached to a network using TCP/IP. The address is written as four octets separated with periods (full-stops), and is made up of a network section, an optional subnet section and a host section.

IPsec IP Security. Provides IP network-layer encryption. IPSec can support large encryption networks (such as the Internet) by using digital certificates for device authentication. When setting up an IPSec connection between two devices, make sure that they support the same encryption method.

ISP Internet Service Provider. An ISP is a business that provides connectivity to the Internet for individuals and other businesses or organizations.

LAN Local Area Network. A network of end stations (such as PCs, printers, servers) and network devices (hubs and switches) that cover a relatively small geographic area (usually not larger than a floor or building). LANs are characterized by high transmission speeds over short distances (up to 1000 metres).

MAC Media Access Control. A protocol specified by the IEEE for determining which devices have access to a network at any one time.

MAC Address Media Access Control Address. Also called the hardware or physical address. A layer 2 address associated with a particular network device. Most devices that connect to a LAN have a MAC address assigned to them as they are used to identify other devices in a network. MAC addresses are 6 bytes long.

NAT Network Address Translation. NAT enables all the computers on your network to share one IP address. The NAT capability of the Router allows you to access the Internet from any computer on your home network without having to purchase more IP addresses from your ISP.

NAT-T

Network A Network is a collection of computers and other computer equipment that are connected for the purpose of exchanging information or sharing resources. Networks vary in size, some are within a single room, others span continents.

Network Interface Card (NIC) A circuit board installed into a piece of computing equipment, for example, a computer, that enables you to connect it to the network. A NIC is also known as an adapter or adapter card.

Protocol A set of rules for communication between devices on a network. The rules dictate format, timing, sequencing and error control.

PPPoE Point-to-Point Protocol over Ethernet. Point-to-Point Protocol is a method of data transmission originally created for dial-up connections; PPPoE is for Ethernet connections.

PPTP Point-to-Point Tunneling Protocol is a method of secure data transmission between two remote sites over the internet.

RJ-45 A standard connector used to connect Ethernet networks. The "RJ" stands for "registered jack".

Router A device that acts as a central hub by connecting to each computer's network interface card and managing the data traffic between the local network and the Internet.

Server A computer in a network that is shared by multiple end stations. Servers provide end stations with access to shared network services such as computer files and printer queues.

SSID Service Set Identifier. Some vendors of wireless products use SSID interchangeably with ESSID.

Subnet Address An extension of the IP addressing scheme that allows a site to use a single IP network address for multiple physical networks.

Subnet mask A subnet mask, which may be a part of the TCP/IP information provided by your ISP, is a set of four numbers configured like an IP address. It is used to create IP address numbers used only within a particular network (as opposed to valid IP address numbers recognized by the Internet, which must assigned by InterNIC).

Subnets A network that is a component of a larger network.

Switch A device that interconnects several LANs to form a single logical LAN that comprises of several LAN segments. Switches are similar to bridges, in that they connect LANs of a different type; however they connect more LANs than a bridge and are generally more sophisticated.

TCP/IP Transmission Control Protocol/Internet Protocol. This is the name for two of the most well-known protocols developed for the interconnection of networks. Originally a UNIX standard, TCP/IP is now supported on almost all platforms, and is the protocol of the Internet.

TCP relates to the content of the data travelling through a network — ensuring that the information sent arrives in one piece when it reaches its destination. IP relates to the address of the end station to which data is being sent, as well as the address of the destination network.

Traffic The movement of data packets on a network.

universal plug and play Universal plug and play is a system which allows compatible applications to read some of their settings from the Router. This allows them to automatically configure some, or all, of their settings and need less user configuration.

URL Filter A URL Filter is a feature of a firewall that allows it to stop its clients form browsing inappropriate Web sites.

WAN Wide Area Network. A network that connects computers located in geographically separate areas (for example, different buildings, cities, or countries). The Internet is an example of a wide area network.

WDS Wireless Distribution System. WDS enables one or more Access Points to rebroadcast received signals to extend range and reach, though this can affect the overall throughput of data.

WECA Wireless Ethernet Compatibility Alliance. An industry group formed to certify cross vendor interoperability and compatibility of 802.11b and 802.11g wireless networking products and to promote the standard for enterprise, small business and home environments. (see also 802.11b, 802.11g, Wi-Fi)

WEP Wired Equivalent Privacy. A shared key encryption mechanism for wireless networking. Encryption strength is 40/64 bit or 128 bit.

Wi-Fi Wireless Fidelity. This is the certification granted by WECA to products that meet their interoperability criteria. (see also 802.11b, WECA)

Wireless Client The term used to describe a desktop or mobile PC that is wirelessly connected to your wireless network

Wireless LAN Service Area Another term for ESSID (Extended Service Set Identifier)

Wizard A Windows application that automates a procedure such as installation or configuration.

WLAN Wireless Local Area Network. A WLAN is a group of computers and devices connected together by wireless in a relatively small area (such as a house or office).

WPA Wi-Fi Protected Access. A dynamically changing encryption mechanism for wireless networking. Encryption strength is 256 bit.

REGULATORY NOTICES

GENERAL STATEMENTS

The 3Com OfficeConnect ADSL 11g Firewall Router, Model Number: WL-542 (3CRWDR100A-72, 3CRWDR100A-72, 3CRWDR100A-72) must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.

This product contains encryption. It is unlawful to export out of the U.S. without obtaining a U.S. Export License.

This product does not contain any user serviceable components. Any unauthorized product changes or modifications will invalidate 3Com's warranty and all applicable regulatory certifications and approvals.

EXPOSURE TO RADIO FREQUENCY RADIATION

This device generates and radiates radio-frequency energy. In order to comply with FCC radio-frequency exposure guidelines for an uncontrolled environment, this equipment must be installed and operated while maintaining a minimum body to antenna distance of 20 cm (approximately 8 in).

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website www.hc-sc.gc.ca/rpb.

This product must maintain a minimum body to antenna distance of 20 cm. Under these conditions this product will meet the Basic Restriction limits of 1999/519/EC [Council Recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz)].

US - RADIO FREQUENCY REQUIREMENTS

This device must not be co-located or operated in conjunction with any other antenna or transmitter.

US FEDERAL COMMUNICATIONS COMMISSION (FCC) EMC COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful: The Interference Handbook

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 004-000-0034504.

3Com is not responsible for any radio or television interference caused by unauthorized modification of the devices included with this 3Com OfficeConnect ADSL 11g Firewall Router, Model Number: WL-542 (3CRWDR100A-72, 3CRWDR100A-72, 3CRWDR100A-72), or the substitution or attachment of connecting cables and equipment other than specified by 3Com.

The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

Changes or modifications not expressly approved by 3Com could void the user's authority to operate this equipment.

US MANUFACTURER'S FCC DECLARATION OF CONFORMITY

3Com Corporation
350 Campus Drive
Marlborough, MA 01752-3064, USA
(508) 323-5000
Date: July 19, 2005

Declares that the Product:

Brand Name: 3Com Corporation
Model Number: WL-542
Equipment Type: OfficeConnect ADSL 11g Firewall Router

Complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including

interference that may cause undesired operation.

FC	3Com OfficeConnect ADSL 11g Firewall Router Model WL-542

INDUSTRY CANADA - RF COMPLIANCE

This device complies with RSS 210 of Industry Canada.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

L ` utilisation de ce dispositif est autorisee seulement aux conditions suivantes: (1) il ne doit pas produire de brouillage et (2) l' utilisateur du dispositif doit etre pret a accepter tout brouillage radioelectrique recu, meme si ce brouillage est susceptible de compromettre le fonctionnement du dispositif.

The term "IC" before the equipment certification number only signifies that the Industry Canada technical specifications were met.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication. To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

Pour empecher que cet appareil cause du brouillage au service faisant l'objet d'une licence, il doit etre utilize a l'interieur et devrait etre place loin des fenetres afin de Fournier un ecram de blindage maximal. Si le matriel (ou son antenne d'emission) est installe a l'exterieur, il doit faire l'objet d'une licence.

INDUSTRY CANADA - EMISSIONS COMPLIANCE STATEMENT

This Class B digital apparatus complies with Canadian ICES-003.

AVIS DE CONFORMITÉ À LA RÉGLEMENTATION D'INDUSTRIE CANADA

Cet appareil numérique de la classe B est conform à la norme NMB-003 du Canada.

SAFETY COMPLIANCE NOTICE

This device has been tested and certified according to the following safety standards and is intended for use only in Information Technology Equipment which has been tested to these or other equivalent standards:

- UL Standard 60950 (3rd Edition) or 60950
- CAN/CSA C22.2 No. 60950 or 60950
- IEC 60950
- EN 60950

EU COMPLIANCE

CE

Usage restrictions apply.
See documentation

For connection to ADSL networks

This equipment may be operated in:

AT	BE	CY	CZ	DK	EE	FI	FR
DE	GR	HU	IE	IT	LV	LT	LU
MT	NL	PL	PT	SK	SI	ES	SE
GB	IS	LI	NO	CH	BG	RO	TR

Intended use: ADSL 802.11g/b Firewall Router

For connection to ADSL networks

NOTE: To ensure product operation is in compliance with local regulations, select the country in which the product is installed. Refer to 3CRWDR100A-72, 3CRWDR100A-72, 3CRWDR100A-72 User Guide.

English	Hereby, 3Com Corporation, declares that this RLAN device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Finnish	3Com Corporation vakuuttaa täten että RLAN device tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Dutch	Hierbij verklaart 3Com Corporation dat het toestel RLAN device in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG Bij deze verklaart 3Com Corporation dat deze RLAN device voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC.
French	Par la présente 3Com Corporation déclare que l'appareil RLAN device est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE Par la présente, 3Com Corporation déclare que ce RLAN device est conforme aux exigences essentielles et aux autres dispositions de la directive 1999/5/CE qui lui sont applicables
Swedish	Härmed intygar 3Com Corporation att denna RLAN device står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG
German	Hiermit erklärt 3Com Corporation, dass sich dieser/diese/dieses Managed Accces Point in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi) Hiermit erklärt 3Com Corporation die Übereinstimmung des Gerätes RLAN device mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG. (Wien)
Greek	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ 3Com Corporation ΔΗΛΩΝΕΙ ΟΤΙ RLAN device ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ÅÊ
Italian	Con la presente 3Com Corporation dichiara che questo RLAN device è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Spanish	Por medio de la presente 3Com Corporation declara que el RLAN device cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE
Portuguese	3Com Corporation declara que este RLAN device está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Malti	Hawnhekk, 3Com Corporation, jiddikjara li dan RLAN device jikkonforma mal-htigijiet essenzjali u ma provvedimenti orajn relevanti li hemm fid-Dirrettiva 1999/5/EC
Estonian	Käesolevaga kinnitab 3Com Corporation seadme RLAN device vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
Hungarian	Alulírott, 3Com Corporation nyilatkozom, hogy a RLAN device megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Slovak	3Com Corporation týmto vyhlasuje, ze RLAN device spĺňa základné po_iadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Czech	3Com Corporation tímto prohlašuje, ze tento RLAN device je ve shodě se základními pozadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Slovene	Šiuo 3Com Corporation deklaruoja, kad šis RLAN device atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Lithuanian	Šiuo 3Com Corporation deklaruoja, kad šis RLAN device atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Latvian	Ar šo 3Com Corporation deklarē, ka RLAN device atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.

A copy of the signed Declaration of Conformity can be downloaded from the Product Support web page for the 3Com OfficeConnect ADSL 11g Firewall Router (3CRWDR100A-72, 3CRWDR100A-72, 3CRWDR100A-72) at http://www.3com.com.

Also available at http://support.3com.com/doc/WL-542_EU_DOC.pdf

EU - Restrictions for Use in the 2.4GHz band

This device may be operated indoors or outdoors in all countries of the European Community using the 2.4GHz band: Channels 1 - 13, except where noted below.

- In Italy the end-user must apply for a license from the national spectrum authority to operate this device outdoors.
- In Belgium outdoor operation is only permitted using the 2.46 - 2.4835 GHz band: Channel 13.
- In France outdoor operation is only permitted using the 2.4 - 2.454 GHz band: Channels 1 - 7.

Brazil RF Compliance

Este equipamento opera em caráter secundário, isto é, não tem direito a proteção contra interferência prejudicial, mesmo de estações do mesmo tipo, e não causar interferência a sistema operando em caráter primário.

INDEX

Numbers
128-bit WEP 46
128-bit WEP Screen 46
1483 Bridge Mode 55
64-bit WEP Screen 47

A
Access Control Screen 62
Add PC Screen 63
Add Schedule Rule Screen 65
Addresses
  IP 85
Admin Password Screen 75
ADSL Status Screen 77
Advanced Screen 68
Automatic Addressing 87

B
Backup/Restore Settings Screen 74
Bridge Mode for Single PC Screen 53
Bridged Mode Configuration Screen 33

C
Cable Specifications 91
Channels 111
Configuration Summary Screen 37
Connection Type Screen 29, 50
Conventions
  notice icons, About This Guide 8
  text, About This Guide 8

D
DDNS 70
DHCP 87
DHCP Clients List 42
DHCP server 25, 42
disabling 26
DMZ Screen 67
DNS 24
DNS Screen 55
DSL mode 29
Dynamic Domain Server (DDNS) Screen 70
Dynamic IP Address 34
Dynamic/Fixed IP for Bridge Mode Screen 35, 55
DYNDNS 70

E
Editing DHCP Clients List Screen 42
Encryption Screen 44
Encryption, disabling 45

F
Firewall Screen 59
Forgotten Password 80

H
Hostname
  configuring 56
Hostname and MAC Address Screen 56

I
Internet
  addresses 85
Internet Properties Screen 26
Internet Protocol (TCP/IP) Properties Screen 24
IP Address 41, 85
IPSEC 68

L
LAN Settings Screen 41
LED 14
LEDs 14
Local Area Properties Screen 24
Logs Screen 77

M
MAC Address 56

configuring 56
MAC Address Filtering Screen 66
mode 30

N
NAT (Network Address Translation) 68
NAT-T (NAT Traversal) 68
Network
addresses 85
Networking
wireless 81
NIC
wireless 14

P
Password 27, 75
Poison Reverse 58
PPPoA 31
PPPoA Screen 31
PPPoA Settings Screen 52
PPPoE 26, 30, 31
PPPoE Screen 30
PPPoE Settings Screen 51

R
Remote Admin 68
Reset to Factory Default Screen 73
Reset to Factory Defaults 80
Restart Router Screen 73
RFC 1483 Bridged Mode 32, 53
RFC 1483 Routed Mode 34
RIP (Routing Information Protocol) 57
RIP Parameter Screen 58
Router Login Screen 28
Routing Mode Screen 34
Routing Table Screen 59

S
Schedule Rule Screen 65
Setup Wizard 27
SNMP Community Screen 71
SNMP Trap Screen 72
Special Applications Screen 60
Specifications
technical 89
SSID 31, 32, 33, 35, 36, 43
Static Addressing 87
Static Route Parameters Screen 57
Status Screen 28, 40
Subnet Mask 85

T
TCP/IP 23, 25, 85
Technical
specifications 89
standards 89
Time and Time Zone screen 76
TZO.com 70

U
Universal Plug and Play 68
Upgrade Screen 74
URL Blocking Screen 64

V
Virtual Servers Screen 61
VPI/VCI 30, 32, 33, 34, 36

W
WAN Ping Blocking 68
WDS 49
Web Browser Location Field 27
Web Proxy 26
WiFi Protected Access 45, 48
Wireless
networking 81
NIC 14
Wireless Configuration Scree 43
Wireless Settings Screen 31, 32, 33, 35, 36, 43
Wireless WDS Settings Screen 49
WPA (with RADIUS Server) Screen 48
WPA-PSK (no server) Screen 45